Accountancy

Financial Accounting Part - II

Textbook for Class XI

Accountancy – Financial Accounting Part II Class XI

CONTENTS

Financial Statements - II

10

LEARNING OBJECTIVES

After studying this chapter, you will be able to :

- *describe the need for adjustments while preparing the financial statements;*
- *explain the accounting treatment of adjustments for outstanding and prepaid expenses, accrued and advance receipts of incomes;*
- *discuss the adjustments to be made regarding depreciation, bad debts, provision for doubtful debts, provision for discount on debtors;*
- *explain the concepts and adjustment of manager's commission and interest on capital;*
- *prepare profit and loss account and balance sheet with adjustments; and*
- *make vertical presentation of financial statements.*

In chapter 9, you learnt about the preparation of simple final accounts in the format of trading and profit and loss account and balance sheet. The preparation of simple final accounts pre-supposes the absence of any accounting complexities which are normal to business operations. These complexities arise due to the fact that the process of determining income and financial position is based on the accrual basis of accounting. This emphasises that while ascertaining the profitability, the revenues be considered on earned basis and not on receipt basis, and the expenses be considered on incurred basis and not on paid basis. Hence, many items need some adjustment while preparing the financial statements. In this chapter we shall discuss all items which require adjustments and the way these are brought into the books of account and incorporated in the final accounts.

10.1 Need for Adjustments

According to accrual concept of accounting, the profit or loss for an accounting year is not based on the revenues realised in cash and the expenses paid in cash during that year because there may be some receipts of incomes and payments of expenses during the current year which may partially relate to the previous year or to the next year. Also, there may be some incomes and expenses relating to the current year that are still to be brought into books of account. So, unless such items duly adjusted, the final accounts will not reflect the true and fair view of the state of affairs of the business.

Let us take an example of an amount of Rs. 1,000 paid on July 01, 2005 towards insurance premium. You understand that any general insurance premium paid usually covers a period of 12 months. Suppose the accounting year ends on March 31, 2006, it would mean that one fourth of the insurance premium is paid on July 01, 2005 relate to the next accounting year 2006-07. Therefore, while preparing the financial statements for 2005-06, the expense on insurance premium that should be debited to the profit and loss account is Rs. 900 (Rs. 1,200 – Rs. 300).

Let us take another example. The salaries for the month of March, 2005 were paid on April 07, 2005. This means that the salaries account of 2004-05 does not include the salaries for the month of March 2005. Such unpaid salaries is termed as *salaries outstanding* which have to be brought into books of account and is debited to profit and loss account along with the salaries already paid for the month of April, 2004 up to Feburary, 2005.

Similarly, adjustments may also become necessary in respect of certain incomes received in advance or those which have accrued but are still to be received. Apart from these, there are certain items which are not recorded on day-to-day basis such as depreciation on fixed assets, interest on capital, etc. These are adjusted at the time of preparing financial statements. The purpose of making various adjustments is to ensure that the final accounts reveal the true profit or loss and the true financial position of the business. The items which usually need adjustments are :

1. Closing stock
2. Outstanding/expenses
3. Prepaid/Unexpired expenses
4. Accrued income
5. Income received in advance
6. Depreciation
7. Bad debts
8. Provision for doubtful debts
9. Provision for discount on debtors
10. Manager's commission
11. Interest on capital

It may be noted that when we prepare the financial statements, we are provided with the trial balance and some other additional information in respect of the adjustments to be made. All adjustments are reflected in the final accounts at two places to complete the double entry. Our earlier example in chapter 9 which represents the trial balance of Ankit is reproduced in figure 10.1:

Trial Balance of Ankit as on March 31, 2005

Account Title	*Elements*	*L.F.*	*Debit Amount Rs.*	*Credit Amount Rs.*
Cash	Assets		1,000	
Bank	Assets		5,000	
Wages	Expense		8,000	
Salaries	Expense		25,000	
Furniture	Assets		15,000	
Rent of building	Expense		13,000	
Debtors	Assets		15,500	
Bad debts	Expense		4,500	
Purchases	Expense		75,000	
Capital				12,000
Equity				
Sales	Revenue			1,25,000
Creditors	Liabilities			15,000
Long-term loan (raised on 1.4.2004)	Liabilities			5,000
Commission received	Revenue			5,000
Total			1,62,000	1,62,000

Additional Information : The stock on March 31, 2005 was Rs. 15,000.

Figure 10.1 : *Showing the trial balance of Ankit*

We will now study about the items of adjustments and you will observe how these adjustments are helpful in the preparation of financial statements in order to reflect the true profit and loss and financial position of the firm.

10.2 Closing Stock

As already discussed in chapter 9, the closing stock represents the cost of unsold goods lying in the stores at the end of the accounting period. The adjustment with regard to the closing stock is done by (i) by crediting it to the trading and profit and loss account, and (ii) by showing it on the asset side of the balance sheet. The adjustment entry to be recorded in this regard is :

Closing stock A/c Dr.
To Trading A/c

The closing stock of the year becomes the opening stock of the next year and is reflected in the trial balance of the next year. The trading and profit

and loss account of Ankit for the year ended March 31, 2005 and his balance sheet as on that date shall appear as follows :

Trading and Profit and Loss Account of Ankit for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses	*Amount Rs.*	*Revenues/Gains*	*Amount Rs.*
Purchases	75,000	Sales	1,25,000
Wages	8,000	Closing stock	15,000
Gross profit c/d	57,000		
	1,40,000		1,40,000
Salaries	25,000	Gross profit b/d	57,000
Rent of building	13,000	Commission received	5,000
Bad debts	4,500		
Net profit (transferred to Ankit's capital account)	**19,500**		
	62,000		62,000

Sometimes the opening and closing stock are adjusted through purchases account. In that case, the entry recorded is as follows :

Closing stock A/c Dr.
To Purchases A/c

This entry reduces the amount in the purchases account and is also known as *adjusted purchases* which is shown on the debit side of the trading and profit and loss account. In this context, it may be noted, that the closing stock will not be shown on the credit side of the trading and profit and loss as it has been already been adjusted through the purchases account. Not only, in such a situation, even the opening stock will not be separately reflected in the trading and profit and loss account, as it is also adjusted in purchases by recording the following entry:

Purchases A/c Dr.
To Opening stock A/c

Another important point to be noted in this context is that when the opening and closing stocks are adjusted through purchases, the trial balance does not show any opening stock. Instead, the closing stock shall appear in the trial balance (not as additional information or as an adjustment item) and so also the adjusted purchases. In such a situation, you should remember that the adjusted purchases shall be debited to the trading and profit and loss account.

The closing stock shall be shown on the assets side of the balance sheet as shown below:

Balance Sheet of Ankit as at March 31, 2005

Liabilities		*Amount Rs.*	*Assets*	*Amount Rs.*
Owners funds			*Non-Current Assets*	
Capital	12,000		Furniture	15,000
Add Net profit	19,500	31,500	*Current Assets*	
Non-Current Liabilities			Debtors	15,500
Long-term loan		5,000	Bank	5,000
Current Liabilities			Cash	1,000
Creditors		15,000	**Closing stock**	**15,000**
		51,500		51,500

10.3 Outstanding Expenses

It is quite common for a business enterprise to have some unpaid expenses in the normal course of business operations at the end of an accounting year. Such items usually are wages, salaries, interest on loan, etc.

When expenses of an accounting period remain unpaid at the end of an accounting period, they are termed as *outstanding expenses*. As they relate to the earning of revenue during the current accounting year, it is logical that they should be duly charged against revenue for computation of the correct amount of profit or loss. The entry to bring such expenses into account is :

Concerned expense A/c Dr.
To Outstanding expense A/c

The above entry opens a new account called *Outstanding Expenses* which is shown on the liabilities side of the balance sheet. The amount of outstanding expenses is added to the total of expenses under a particular head for the purpose of preparing trading and profit and loss account.

For example, refer to Ankit's trial balance (refer figure 10.1). You will notice that wages are shown at Rs. 8,000. Let us assume that Ankit owes Rs.500 as wages relating to the year 2004-05 to one of his employees. In that case, the correct expense on wages amounts to Rs. 8,500 instead of Rs. 8,000. Ankit must show Rs. 8,500 as expense on account of wages in the trading and profit and loss account and recognise a current liability of Rs. 500 towards the sum owed to his staff. It will be referred to as *wages outstanding* and it will be adjusted to wages account by recording the following journal entry:

Wages A/c Dr. 500
To Wages outstanding A/c 500

The amount of outstanding wages will be added to wages account for the preparation of the trading and profit and loss account as follows :

Trading and Profit and Loss Account of Ankit for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses		*Amount Rs.*	*Revenues/Gains*	*Amount Rs.*
Purchases		75,000	Sales	1,25,000
Wages	**8,000**			
***Add* Outstanding wages**	**500**	**8,500**	Closing stock	15,000
Gross profit c/d		56,500		
		1,40,000		1,40,000
Salaries		25,000	Gross profit b/d	56,500
Rent of building		13,000	Commission received	5,000
Bad debts		4,500		
Net profit (transferred to Ankit's capital account)		**19,000**		
		61,500		61,500

Observe carefully the trading and profit and loss account of Ankit. Did you notice the amount of net profit is reduced to Rs. 19,000 on account of outstanding wages. The item relating to outstanding wages will be shown in balance sheet as follows :

Balance Sheet of Ankit as at March 31, 2005

Liabilities		*Amount Rs.*	*Assets*	*Amount Rs.*
Owners Funds			*Non-Current Assets*	
Capital	12,000		Furniture	15,000
Add Profit	19,000	31,000	*Current Assets*	
Non-Current Liabilities			Debtors	15,500
Long-term loan		5,000	Bank	5,000
Current Liabilities			Cash	1,000
Creditors		15,000	Closing stock	15,000
Outstanding wages		**500**		
		51,500		51,500

10.4 Prepaid Expenses

There are several items of expense which are paid in advance in the normal course of business operations. At the end of the accounting year, it is found that the benefits of such expenses have not yet been fully received; a portion

of its benefit would be received in the next accounting year. This portion of expense, is carried forward to the next year and is termed as *prepaid expenses*. The necessary adjustment in respect of prepaid expenses is made by recording the following entry:

Prepaid expense A/c Dr.
To concerned expense A/c

The effect of the above adjustment entry is that the amount of prepaid part is deducted from the total of the particular expense, and the new account of prepaid expense is shown on the liabilities side of the balance sheet. For example, in Ankit's trial balance, let us assume that the amount of salary paid by him to the employees includes an amount of Rs. 5,000 which was paid in advance to one of his employees upon his joining the office. This implies that Ankit has overpaid his staff by Rs. 5,000 on account of his salary. Hence, correct expense on account of salary during the current period will be Rs. 20,000 instead of Rs. 25,000. Ankit must show Rs. 20,000 expense on account of salary in the profit and loss account and recognise a current asset of Rs. 5,000 as an advance salary to the employee. It will be termed as prepaid salary account and will be recorded by the following journal entry :

Prepaid salary A/c Dr. 5,000
To salary A/c 5,000

The account of prepaid salary will be shown in the trading and profit and loss account as follows:

Trading and Profit and Loss Account of Ankit for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses		*Amount Rs*	*Revenues/Gains*	*Amount Rs.*
Purchases		75,000	Sales	1,25,000
Wages	8,000		Closing stock	15,000
Add Outstanding wages	500	8,500		
Gross profit c/d		56,500		
		1,40,000		1,40,000
Salaries	**25,000**		Gross profit b/d	56,500
***Less* Prepaid salary**	**(5,000)**	**20,000**		
Rent of building		13,000	Commission received	5,000
Bad debts		4,500		
Net profit (transferred to Ankit capital account)		**24,000**		
		61,500		61,500

Observe how the prepaid salary has resulted in an increase of net profit by Rs. 5,000 making it as Rs. 24,000 Further, the item relating to prepaid salary will be shown in the balance sheet on the assets side as follows :

Balance Sheet of Ankit as at March 31,2005

Liabilities		*Amount Rs.*	*Assets*	*Amount Rs.*
Owners Funds			*Non-Current Assets*	
Capital	12,000		Furniture	15,000
Add Profit	24,000	36,000	*Current Assets*	
Non-Current Liabilities			Debtors	15,500
Long-term loan		5,000	**Prepaid salary**	**5,000**
Current Liabilities			Bank	5,000
			Cash	1,000
Creditors		15,000	Closing stock	15,000
Outstanding wages		500		
		56,500		56,500

10.5 Accrued Income

It may also happen that certain items of income such as interest on loan, commission, rent, etc. are earned during the current accounting year but have not been actually received by the end of the same year. Such incomes are known as *accrued income*. The adjusting entry for accrued income is :

Accrued income A/c Dr.
To Concerned income A/c

The amount of accrued income will be added to the related income in the profit and loss account and the new account of accrued income will appear on the asset side of the balance sheet.

Let us, for example, assume that Ankit was giving a little help to a fellow businessman by introducing few parties to him on commission for this service. In the trial balance of Ankit you will notice an item of commission received amounting to Rs. 5,000. Assume that the commission amounting to Rs.1, 500 was still receivable from the fellow businessman. This implies that income from commission earned during 2004-05 is Rs. 6, 500 (Rs.5, 000 + Rs. 1,500) Ankit needs to record an adjustment entry to give effect to the accrued commission as follows :

Accrued Commission A/c	Dr.	1,500	
To Commission A/c			1,500

The account of accrued income will be recorded in trading and profit and loss account as follows :

Trading and Profit and Loss Account of Ankit for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses		*Amount Rs.*	*Revenues/Gains*		*Amount Rs.*
Purchases		75,000	Sales		1,25,000
Wages	8,000		Closing stock		15,000
Add Outstanding	500	8,500			
Gross profit c/d		56,500			
		1,40,000			1,40,000
Salaries	25,000		Gross profit b/d		56,500
Less Prepaid salary	(5,000)	20,000			
Rent of building		13,000	**Commission received**	**5,000**	
			***Add* Accrued commission**	**1,500**	**6,500**
Bad debts		4,500			
Net profit (transferred to Ankit's capital account)		25,500			
		63,000			63,000

Observe that the accrued income has resulted in an increase in the net profit by Rs. 1,500 making it as Rs. 25,500. Further, it will be shown in the balance sheet of Ankit on the assets side under the head current asset.

Balance Sheet of Ankit as at March 31, 2005

Liabilities		*Amount* Rs.	*Assets*	*Amount* Rs.
Owners Funds			*Non-Current Assets*	
Capital	12,000		Furniture	15,000
Add Profit	25,500	37,500	*Current Assets*	
Non-Current Liabilities			Debtors	15,500
Long-term loan		5,000	Prepaid salary	5,000
Current Liabilities			**Accrued commission**	**1,500**
Creditors		15,000	Bank	5,000
Outstanding wages		500	Cash	1,000
			Closing stock	15,000
		58,000		58,000

10.6 Income Received in Advance

Sometimes, a certain income is received but the whole amount of it does not belong to the current period. The portion of the income which belongs to the next accounting period is termed as income received in advance or an *Unearned Income*. Income received in advance is adjusted by recording the following entry:

Concerned income A/c Dr.
To Income received in advance A/c

The effect of this entry will be that the balance in the income account will be equal to the amount of income earned for the current accounting period, and the new account of income received in advance will be shown as a liability in the balance sheet.

For example**,** let us assume Ankit has agreed in March 31, 2005 to sublet a part of the building to a fellow shopkeeper @ Rs. 1,000 per month. The person gives him rent in advance for the next three months of April, May and June. The amount received had been credited to the profit and loss account. However, this income does not pertain to current year and hence will not be credited to profit and loss account. It is *income received in advance* and will be recognised as a liability amounting to Rs. 3,000. Ankit needs to record an adjustment entry to give effect to income received in advance by way of following journal entry:

Rent received A/c	Dr.	3,000	
To Rent received in advance A/c			3,000

This will lead a new account of rent received in advance of Rs. 3,000 which will appear as follows :

Balance Sheet of Ankit as at March 31, 2005

Liabilities		*Amount Rs.*	*Assets*	*Amount Rs.*
Owners Funds			*Non Current Assets*	
Capital	12,000		Furniture	15,000
Add Net profit	25,500	37,500	*Current Assets*	
Non Current Liabilities			Debtors	15,500
Long-term loan		5,000	Prepaid salary	5,000
Current Liabilities			Accrued commission	1,500
Creditors		15,000	Bank	5,000
Outstanding wages		500	Cash	4,000
Rent received in advance		**3,000**	Closing stock	15,000
		61,000		61,000

10.7 Depreciation

Recall from chapter 7, that depreciation is the decline in the value of assets on account of wear and tear and passage of time. It is treated as a business expense and is debited to profit and loss account. This, in effect, amounts to writing-off a portion of the cost of an asset which has been used in the business for the purpose of earning profits. The entry for providing depreciation is :

Depreciation A/c Dr.
To Concerned asset A/c

In the balance sheet, the asset will be shown at cost *minus* the amount of depreciation. For example, the trial balance in our example shows that Ankit has a furniture account with a balance of Rs. 15,000. Let us assume that furniture is subject to a depreciation of 10% per annum. This implies that Ankit must recognise that at the end of the year the value attached to furniture is to be reduced by Rs. 1,500 (Rs. 15,000 10%). Ankit needs to record an adjustment entry to give effect to depreciation on furniture as follows :

Depreciation A/c Dr. 1,500
To Furniture A/c 1,500

Depreciation will be shown in the profit and loss account and balance sheet as follows :

Trading and Profit and Loss Account of Ankit for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses		*Amount Rs.*	*Revenues/Gains*		*Amount Rs.*
Purchases		75,000	Sales		1,25,000
Wages	8,000		Closing stock		15,000
Add Outstanding wages	(500)	8,500			
Gross Profit c/d		56,500			
		1,40,000			1,40,000
Salaries	25,000		Gross profit b/d		56,500
Less Prepaid salary	(5,000)	20,000			
Rent of building		13,000	Commission received	5,000	6,500
			Add Accrued	1,500	
Depreciation-Furniture		**1,500**	Commission		
Bad debts		4,500			
Net profit (transferred to Ankit's capital account)		**24,000**			
		63,000			63,000

Notice that the amount of net profit declines with the adjustment of depreciation. Let us now see how depreciation as an expense will be shown in balance sheet.

Balance Sheet of Ankit
as at March 31, 2005

Liabilities		*Amount Rs.*	*Assets*		*Amount Rs.*
Owners Funds			*Non-Current Assets*		
Capital	12,000		**Furniture**	**15,000**	
Add Profit	24,000	36,000	***Less* Depreciation**	**(1,500)**	**13,500**
Non-Current Liabilities			*Current Assets*		
Long-term loan		5,000	Debtors		15,500
Current Liabilities			Prepaid salary		5,000
Creditors		15,000	Accrued commission		1,500
Outstanding wages		500	Bank		5,000
Rent received in advance		3,000	Cash		4,000
			Closing stock		15,000
		59,500			59,500

10.8 Bad Debts

Bad debts refer to the amount that the firm has not been able to realise from its debtors. It is regarded as a loss and is termed as *bad debt*. The entry for recording bad debt is:

Bad debts A/c Dr.
To Debtors A/c

You will notice in Ankit's trial balance, that it contains bad debts amounting to Rs. 4,500. Whereas, the sundry debtors of Ankit are reported as Rs. 15,500. The existence of bad debts in the trial balance signifies that Ankit has incurred a loss arising out of bad debts during the year and which has been already recorded in the books of account.

However, assuming one of his debtors who owed him Rs. 2,500 had become insolvent, and nothing is receivable from him. But the amount of bad debts related to the current year is still to be account for. This fact appears as additional information and is termed as *further bad debts*. The adjustment entry to be recorded for the amount will be as follows. For this purpose, Ankit needs to record an adjustment entry as under :

Bad debts A/c	Dr.	2,500	
To Debtors A/c			2,500

This entry will reduce the value of debtors to Rs. 13,000(Rs. 15,500 – Rs. 2,500) and increases the amount of bad debts to Rs. 7,000 (Rs. 4,500 + Rs. 2,500).

The treatment of further bad debts in profit and loss account and balance sheet is shown below :

Trading and Profit and Loss Account of Ankit for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses		*Amount Rs.*	*Revenues/Gains*		*Amount Rs.*
Purchases		75,000	Sales		1,25,000
Wages	8,000		Closing stock		15,000
Add Outstanding wages	500	8,500			
Gross profit c/d		56,500			
		1,40,000			1,40,000
Salaries	25,000		Gross profit b/d		56,500
Less Prepaid salary	(5,000)	20,000			
Rent of building		13,000	Commission received	5,000	
			Add Accrued commission	1,500	6,500
Depreciation – Furniture		1,500			
Bad Debts	**4,500**				
***Add* Further bad debts**	**2,500**	**7,000**			
Net profit (transferred to Ankit's capital account)		**21,500**			
		63,000			63,000

Balance Sheet of Ankit as at March 31, 2005

Liabilities		*Amount Rs.*	*Assets*		*Amount Rs.*
Owners Funds			*Non-Current Assets*		
Capital	12,000		Furniture	15,000	
Add Profit	21,500	33,500	*Less* Depreciation	(1,500)	13,500
Non-Current Liabilities			*Current Assets*		
Long-term loan		5,000	**Debtors**	**15,500**	
			***Less* Further bad debts**	**(2,500)**	**13,000**
Current Liabilities and Provisions			Prepaid salary		5,000
Creditors		15,000	Accrued commission		1,500
			Bank		5,000
Outstanding Wages		500	Cash		4,000
			Closing stock		15,000
Rent received in advance		3,000			
		57,000			57,000

10.9 Provision for Bad and Doubtful Debts

In the above balance sheet, debtors now appears at Rs. 13,000, which is their estimated realisable value during next year. It is quite possible that the whole

of this amount may not be realised in future. However, it is not possible to accurately know the amount of such bad debts. Hence, we make a reasonable estimate of such loss and provide the same. Such provision is called *provision for bad debts* and is created by debiting profit and loss account. The following journal entry is recorded in this context :

Profit and Loss A/c Dr.
To Provision for doubtful debts A/c

Provision for doubtful debts is also shown as a deduction from the debtors on the asset side of the balance sheet.

Let us assume, Ankit feels that 5% of his debtors on March 31, 2005 are likely to default on their payments next year. This implies he expects bad debts of Rs. 650 (Rs. 13,000 5%). Ankit needs to record the adjustment entry as :

Profit and loss A/c	Dr.	650	
To Provision for doubtful debts A/c			650

This implies that Rs. 650 will reduce the current year's profit on account of doubtful debts. In the balance sheet, it will be shown as a deduction from sundry debtors.

Trading and Profit and Loss Account of Ankit for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses		*Amount Rs.*	*Revenues/Gains*		*Amount Rs.*
Purchases		75,000	Sales		1,25,000
Wages	8,000		Closing stock		15,000
Add Outstanding	500	8,500			
Gross profit c/d		56,500			
		1,40,000			1,40,000
Salaries	25,000		Gross profit b/d		56,500
Less Prepaid salary	(5,000)	20,000			
Rent of building		13,000	Commission received	5,000	
Depreciation – Furniture		1,500	*Add* Accrued	1,500	6,500
Bad debts	4,500		commission		
Add Further bad debts	2,500	7,000			
Provision for doubtful debts		**650**			
Net profit (transferred to Ankit's capital account)		20,850			
		63,000			63,000

Balance Sheet of Ankit as at March 31, 2005

Liabilities		*Amount Rs.*	*Assets*		*Amount Rs.*
Owners Funds			*Non-Current Assets*		
Capital	12,000		Furniture	15,000	
Add Net profit	20,850	32,850	*Less* Depreciation	(1,500)	13,500
Non-Current Liabilities			*Current Assets*		
Long-term loan		5,000	**Debtors**	**15,500**	
			***Less* Furtherbad debts**	**2,500**	
				13,000	
			***Less* Provision for doubtful debts**	**650**	**12,350**
Current Liabilities & Provisions			Prepaid salary		5,000
Creditors		15,000	Accrued commission		1,500
Outstanding wages		500	Bank		5,000
Rent received in advance		3,000	Cash		4,000
			Closing stock		15,000
		56,350			56,350

It may be noted that the provision created for doubtful debts at the end of a particular year will be carried forward to the next year and it will be used for meeting the loss due to bad debts incurred during the next year. The provision for doubtful debts brought forward from the previous year is called the *opening provision or old provision***.** When such a provision already exists, the loss due to bad debts during the current year are adjusted against the same and while making provision for doubtful debts required at the end of the current year is called *new provision.* The balance of old provision as given in trial balance should also be taken into account.

Let us take an example to understand how bad debts and provision for doubtful debts are recorded. An extract from a trial balance on March 31, 2005 is given below :

	Rs.
Sundry debtors	32,000
Bad debts	2,000
Provision for doubtful debts	3,500

Additional Information :

Write-off further bad debts Rs. 1,000 and create a provision for doubtful debts @ 5% on debtors.

In this case, the following journal entries will be recorded :

Date	*Particulars*	*L.F.*	*Debit Amount Rs.*	*Credit Amount Rs.*
	(a) Bad debts A/c Dr. To Sundry debtors (Futher bad debts)		1,000	1,000
	(b) Provision for doubtful debts A/c Dr. To Bad debts A/c (Bad debts adjusted against the provision)		3,000	3,000
	Profit and Loss A/c Dr. To Provision for doubtful debts A/c (Amount charges from profit and loss account)		1,050	1,050

Profit and Loss Account
for the year ended March 31, 2005

		Rs.		*Rs.*
Provision for doubtful debts:				
Bad debts	2,000			
Further bad debts	1,000			
New provision	1,550			
	4,550			
Less Old provision	3,500	1,050		

**Only relevant items.*

Balance Sheet as at March 31, 2005

				Rs.
		Sundry debtors	32,000	
		Less Further	(1,000)	
		bad debts	31,000	
		Less Provision	(1,550)	
		for doubtful debts		29,450

**Only relevant items.*

Note : *The amount of new provision for doubtful debts has been calculated as follows: Rs. 31,000 [1] 5/100 = Rs. 1,550.*

10.10 Provision for Discount on Debtors

A business enterprise allows discount to its debtors to encourage prompt payments. Discount likely to be allowed to customers in an accounting year

can be estimated and provided for by creating a provision for discount on debtors. Provision for discount is made on good debtors which are arrived at by deducting further bad debts and the provision for doubtful debts. The following journal entry is recorded to create provision for discount on debtors:

Profit and loss A/c Dr.
To Provision for discount on debtors A/c

As stated above, the provision for discount on debtors will be created only on good debtors. It will be calculated on the amount of debtors arrived at after deducting the doubtful debts, i.e. Rs. 12,350 (Rs. 13,000 – Rs. 650).
Ankit needs to record the adjustment entry as :

Profit and loss A/c	Dr.	227	
To Provision for discount on debtors A/c			227

This will reduce the current year profit by Rs. 227 on account of probable discount on prompt payment. In the balance sheet, it will be shown as a deduction from the debtors account to portray correctly the expected realiable value of debtors as Rs. 12,123.

Trading and Profit and Loss Account of Ankit for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses		*Amount Rs.*	*Revenues/Gains*		*Amount Rs.*
Purchases		75,000	Sales		1,25,000
Wages	8,000		Closing stock		15,000
Add Outstanding wages	(500)	8,500			
Gross profit c/d		56,500			
		1,40,000			1,40,000
Salaries	25,000		Gross profit b/d		56,500
Less Prepaid salary	(5,000)	20,000			
Rent of building		13,000	Commission received	5,000	
			Add Accrued commission	1,500	6,500
Depreciation–Furniture		1,500			
Bad debts	4,500				
Add Further bad debts	2,500	7,000			
Provision for doubtful debts		650			
Provision for discount on debtors		**227**			
Net profit (transferred to Ankit's capital account)		**20,623**			
		63,000			63,000

Balance Sheet of Ankit as on March 31, 2005

Liabilities		*Amount Rs.*	*Assets*		*Amount Rs.*
Owners Funds			*Non-Current Assets*		
Capital	12,000		Furniture	15,000	
Add Net profit	20,623	32,623	*Less* Depreciation	(1,500)	13,500
Non-Current Liabilities			*Current Assets*		
Long-term loan		5,000	**Debtors**	**15,500**	
			***Less* Further bad debts**	**2,500 13,000**	
			***Less* Provision for bad and doubtful debts**	**650**	
				12,350	
			***Less* Provision for discount on debtors**	**(227)**	**12,123**
Current Liabilities & Provisions			Prepaid salary		5,000
Creditors		15,000	Accrued commission		1,500
			Bank		5,000
Outstanding wages		500	Cash		4,000
			Closing stock		15,000
Rent received in advance		3,000			
		56,123			56,123

In the subsequent year, the discount will be transferred to the provision for discount on debtors account. The account will be treated in the same manner as the provision for doubtful debts.

10.11 Manager's Commission

The manager of the business is sometimes given the commission on the net profit of the company. The percentage of the commission is applied on the profit either *before charging such commission* or *after charging such commission*. In the absence of any such information, it is assumed that commission is allowed as a percentage of the net profit before charging such commission.

Suppose the net profit of a business is Rs. 110 before charging commission. If the manager is entitled to 10% of the profit before charging such commission, the commission will be calculated as :

= Rs. 110 10/100
= Rs. 11

In case the commission is 10% of the profit after charging such commission, it will be calculated as :

= Profit before commission Rate of commission/ (100 + commission)

$$= \text{Rs. } 110 \times \frac{10}{110} = \text{Rs. } 10.$$

The managers commission will be adjusted in the books of account by recording the following entry :

Profit and loss A/c Dr.
To Manager's commission A/c

Let us recall our example and assume that Ankit's manager is entitled to a commission @ 10%. Observe the following profit and loss account if it is based on :

(i) amount of net profit before charging such commission
(ii) amount of profit after charging such commission.

(i) Trading and Profit and Loss Account of Ankit for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses		*Amount Rs.*	*Revenues/Gains*		*Amount Rs.*
Purchases		75,000	Sales		1,25,000
Wages	8,000		Closing stock		15,000
Add Outstanding wages	500	8,500			
Gross profit c/d		56,500			
		1,40,000			1,40,000
Salaries	25,000		Gross profit		56,500
Less Prepaid salary	(5,000)	20,000			
Rent of building		13,000	Commission received	5,000	
			Add Accrued	1,500	6,500
Depreciation – Furniture		1,500	commission		
Bad debts	4,500				
Add Further bad debts	2,500	7,000			
Provision for doubtful debts		650			
Provision for discount on debtors		227			
Manager's commission		**2,062**			
Net profit (transferred to Ankit's capital account)		**18,561**			
		63,000			63,000

Balance Sheet of Ankit as at March 31, 2005

Liabilities		*Amount Rs.*	*Assets*		*Amount Rs.*
Owners Funds			*Non-Current Assets*		
Capital	12,000		Furniture	15,000	
Add Net profit	18,561	30,561	*Less* Depreciation	(1,500)	13,500
Non-Current Liabilities			*Current Assets*		
Long-term loan		5,000	Debtors	15,500	
			Less Further bad debts	(2,500)	
				13,000	
			Less Provision for bad		
Current Liabilities and Provisions			and doubtful	(650)	
Creditors		15,000	debts	12,350	
			Less Provision for		
			discount on debtors	(227)	12,123
Outstanding wages		500	Prepaid salary		5,000
Rent received in advance		3,000	Accrued commission		1,500
			Bank		5,000
			Cash		4,000
Manager's commission outstanding		**2,062**	Closing stock		15,000
		56,123			56,123

(ii) Trading and Profit and Loss Account of Ankit for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses		*Amount Rs.*	*Revenues/Gains*		*Amount Rs.*
Purchases		75,000	Sales		1,25,000
Wages	8,000		Closing stock		15,000
Add Outstanding wages	500	8,500			
Gross profit c/d		56,500			
		1,40,000			1,40,000
Salaries	25,000		Gross profit b/d		56,500
Less Prepaid salary	(5,000)	20,000			
Rent of building		13,000	Commission received	5,000	
			Add Accrued	1,500	6,500
Depreciation–Furniture		1,500	commission		
Bad debts	4,500				
Add Further bad debts	2,500	7,000			
Provision for bad and doubtful debts		650			
Provision for discount on debtors		227			
Manager's commission		**1,875**			
Net profit (transferred to Ankit's capital account)		**18,748**			
		63,000			63,000

Balance Sheet of Ankit as at March 31, 2005

Liabilities		*Amount Rs.*	*Assets*		*Amount Rs.*
Owners Funds			*Non-Current Assets*		
Capital	12,000		Furniture	15,000	
Add Net profit	18,748	30,748	*Less* Depreciation	(1,500)	13,500
Non-Current Liabilities					
Long-term loan		5,000	*Current Assets*		
			Debtors	15,500	
			Less Further bad debts	(2,500)	
				13,000	
			Less Provision for bad & doubtful debts	(650) 12,350	
			Less Provision for discount on debtors	(227)	12,123
Current Liabilities and Provisions			Prepaid salary		5,000
Creditors		15,000	Accrued commission		1,500
Outstanding wages		500	Bank		5,000
Rent received in advance		3,000	Cash		4,000
Manager commission outstanding		**1,875**	Closing stock		15,000
		56,123			56,123

10.12 Interest on Capital

Sometimes, the proprietor may like to know the profit made by the business after providing for interest on capital. In such a situation, interest is calculated at a given rate of interest on capital as at the beginning of the accounting year. If however, any additional capital is brought during the year, the interest may also be computed on such amount from the date on which it was brought into the business. Such interest is treated as expense for the business and the following journal entry is recorded in the books of account:

Interest on capital A/c Dr.
To Capital A/c

In the final accounts, it is shown as an expense on the debit side of the profit and loss account and added to capital in the balance sheet.

Let us assume, Ankit decides to provide 5% interest on his capital. This shall amount to Rs. 600 for which the following journal entry will be recorded:

Interest on capital A/c	Dr.	600	
To Capital A/c			600

This implies that net profit shall be reduced by Rs. 600. As a result, the reduced amount of profit shall be added to the capital in the balance sheet.

But, when interest on capital shall be added to the capital, this effect shall be neutralised. As shown below :

	Rs.
Capital	12,000
Add Profit	17,961
	29,961
Add Interest on capital	600
	30,561

Test Your Understanding

Tick the correct answer :

1. Rahul's trial balance provide you the following information :

Debtors	Rs. 80,000
Bad debts	Rs. 2,000
Provision for bad debts	Rs. 4,000

   It is desired to maintain a provision for bad debts of Rs. 1,000
   State the amount to be debited/credited in profit and loss account :
   (a) Rs. 5,000 (Debit) (b) Rs. 3,000 (Debit)
   (c) Rs. 1,000 (Credit) (d) none of these.
2. If the rent of one month is still to be paid the adjustment entry will be :
   (a) Debit outstanding rent account and Credit rent account
   (b) Debit profit and loss account and Credit rent account
   (c) Debit rent account and Credit profit and loss account
   (d) Debit rent account and Credit outstanding rent account.
3. If the rent received in advance Rs. 2,000. The adjustment entry will be :
   (a) Debit profit and loss account and Credit rent account
   (b) Debit rent account Credit rent received in advance account
   (c) Debit rent received in advance account and Credit rent account
   (d) None of these.
4. If the opening capital is Rs. 50,000 as on April 01, 2005 and additional capital introduced Rs. 10,000 on January 01, 2006. Interest charge on capital 10% p.a. The amount of interest on capital shown in profit and loss account as on March 31, 2005 will be :
   (a) Rs. 5,250 (b) Rs. 6,000
   (c) Rs. 4,000 (d) Rs, 3,000.
5. If the insurance premium paid Rs. 1,000 and pre-paid insurance Rs. 300. The amount of insurance premium shown in profit and loss account will be :
   (a) Rs. 1,300 (b) Rs. 1,000
   (c) Rs. 300 (d) Rs. 700.

	Adjustment	*Adjustment Entry*		*Treatment in Trading and Profit and Loss Account*	*Treatment in Balance Sheet*
1.	Closing stock	Closing stock A/c To Trading A/c	Dr.	Shown on the credit assets side and profit and loss account	Shown on the assets side
2.	Outstanding expenses	Expense A/c To outstanding expense A/c	Dr.	Added to the respective expense on the debit side	Shown on the liabilities side
3.	Prepaid/ Unexpired expenses	Prepaid expense A/c To Expenses A/c	Dr.	Deducted from the respective expense on the debit side	Shown on the assets side
4.	Income earned but not received	Accured income A/c To Income A/c	Dr.	Added to the respective income on the credit side	Shown on the assets side
5.	Income received in advance	Income A/c To Income received in advence A/c	Dr.	Deducted from the respective income on the credit side	Shown on the liabilities sides
6.	Depreciation	Depreciaton A/c To Assets A/c	Dr.	Shown on the debit side	Deducted from the value of asset
7.	Provision for bad and doubtful debts	Profit and Loss A/c To Provision for doubtful debts	Dr.	Shown on the debit side	Shown as deduction from debtors
8.	Provision for discount on debtors	Profit and Loss A/c To Provision for discount debtors	Dr.	Shown on the debit side	Shown as deductoin form debtors
9.	Manager's commission	Manager's commission A/c To outstanding commission A/c	Dr.	Shown on the debit side	Shown on the liabilities side
10.	Interest on capital	Interest on capital A/c To capital A/c	Dr.	Shown on the debit side	Shown as addition to capital
11.	Further bad debts	Bad debts A/c To Sundry Debtors A/c	Dr.	Shown on the debit side	Deducted from debtors

Fig. 10.2 : *Showing treatment of various types of adjustments*

Illustration 1

From the following balances, prepare the trading and profit and loss account and balance sheet as on March 31, 2005.

Debit Balances	*Amount Rs.*	*Credit Balances*	*Amount Rs.*
Drawings	6,300	Capital	1,50,000
Cash at bank	13,870	Discount received	2,980
Bills receivable	1,860	Loans	15,000
Loan and Building	42,580	Purchases return	1,450
Furniture	5,130	Sales	2,81,500
Discount allowed	3,960	Reserve for bad debts	4,650
Bank charges	100	Creditors	18,670
Salaries	6,420		
Purchases	1,99,080		
Stock (opening)	60,220		
Sales return	1,870		
Carriage	5,170		
Rent and Taxes	7,680		
General expenses	3,630		
Plant and Machinery	31,640		
Book debts	82,740		
Bad debts	1,250		
Insurance	750		
	4,74,250		4,74,250

Adjustments

1. Closing stock Rs. 70,000
2. Create a reserve for bad and doubtful debts @ 10% on book debts
3. Insurance prepaid Rs. 50
4. Rent outstanding Rs. 150
5. Interest on loan is due @ 6% p.a.

Solution

Trading and Profit and Loss Account
for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses		*Amount Rs.*	*Revenues/Gains*		*Amount Rs.*
Opening stock		60,220	Sales	2,81,500	
Purchase	1,99,080		*Less* : Sales return	(1,870)	2,79,630
Less Purchases return	(1,450)	1,97,630	Closing stock		70,000
Carriage		5,170			
Gross profit c/d		86,610			
		3,49,630			3,49,630

Discount allowed		3,960	Gross profit b/d	86,610
Bank charges		100	Discount received	2,980
Salaries		6,420		
Rent and Taxes	7,680			
Add Rent outstanding	150	7,830		
General expenses		3,630		
Insurance	750			
Less Insurance prepaid	(50)	700		
Bad debts	1,250			
Add New provision	8,274			
for bad debts	9,524			
Less Old provision	(4,650)			
for bad debts		4,874		
Interest on loan outstanding		900		
Net profit (transferred to capital account)		61,176		
		89,590		89,590

Balance Sheet as at March 31, 2005

Liabilities		*Amount Rs.*	*Assets*		*Amount Rs.*
Creditors		18,670	Cash at bank		13,870
Loan	15,000				
Add Interest on loan outstanding	900	15,900	Book debts	82,740	
Rent outstanding		150	*Less* Reserve for bad debts	(8,274)	74,466
Capital	1,50,000		Bills receivable		1,860
Add Net profit	61,176		Land and Building		42,580
	2,11,176		Furniture		5,130
Less Drawings	(6,300)	2,04,876	Plant and Machinery		31,640
			Insurance (prepaid)		50
			Closing stock		70,000
		2,39,596			2,39,596

Illustration 2

The following were the balances extracted from the books of Yogita as on March 31, 2005 :

Debit Balances	*Amount*	*Credit Balances*	*Amount*
	Rs.		*Rs.*
Cash in hand	540	Sales	98,780
Cash at bank	2,630	Return outwards	500
Purchases	40,675	Capital	62,000
Return inwards	680	Sundry creditors	6,300
Wages	8,480	Rent	9,000
Fuel and Power	4,730		
Carriage on sales	3200		
Carriage on purchases	2040		
Opening stock	5,760		
Building	32,000		
Freehold land	10,000		
Machinery	20,000		
Salaries	15,000		
Patents	7,500		
General expenses	3,000		
Insurance	600		
Drawings	5,245		
Sundry debtors	14,500		

Taking into account the following adjustments prepare trading and profit and loss account and balance sheet as on March 31, 2005 :

(a) Stock in hand on March 31, 2005,was Rs. 6,800.
(b) Machinery is to be depreciated at the rate of 10% and patents @ 20%.
(c) Salaries for the month of March, 2005 amounting to Rs. 1,500 were outstanding.
(d) Insurance includes a premium of Rs. 170 on a policy expiring on September 30, 2006.
(e) Further bad debts are Rs. 725. Create a provision @ 5% on debtors.

(f) Rent receivable Rs. 1,000.

Solution:

Books of Yogita
Trading and Profit and Loss Account
for the year ended March 31, 2005

Dr. *Expenses/Losses*		*Amount*	**Cr.** *Revenues/Gains*		*Amount*
		Rs.			*Rs.*
Opening stock		5,760			
Purchases	40,675		Sales	98,780	
Less Return outwards	(500)	40,175	*Less* Return inwards	(680)	98,100
Wages		8,480	Closing stock		6,800
Fuel and Power		4,730			
Carriage on purchases		2,040			
Gross profit c/d		43,715			
		1,04,900			1,04,900
Salaries	15,000		Gross profit b/d		43,715
Add Outstanding salaries	1,500	16,500	Rent	9,000	
Carriage		3,200	*Add* Accrued rent	1,000	10,000
General expenses		3,000			
Insurance	600				
Less Prepaid insurance	(85)	515			
Further bad debts	725				
Add Provision for bad debts	689	1,414			
Depreciation : machinery	2,000				
Patent	1,500	3,500			
Net profit (transferred to capital account)		25,586			
		53,715			53,715

Balance Sheet as at March 31, 2005

Dr. *Liabilities*		*Amount*	*Assets*		**Cr.** *Amount*
		Rs.			*Rs.*
Sundry creditors		6,300	Cash in hand		540
			Cash in bank		2,630
Salaries outstanding		1,500	Sundry debtors	14,500	
Capital	62,000		*Less* Further bad debts	(725) 13,775	
			Less Provision for bad debts	(689)	13,086
Add Net profit	25,586		Insurance prepaid		85
	87,586		Stock		6,800
			Rent accrued		1,000
Less Drawings	(5,245)	82,341	Freehold land		10,000
			Building		32,000
			Machinery	20,000	
			Less Depreciation	(2,000)	18,000
			Patents	7,500	
			Less Depreciation	(1,500)	6,000
		90,141			90,141

Illustration 3

The following balances were extracted from the books of Shri R. Lal on March 31, 2005

Account Title	*Amount Rs.*	*Account Title*	*Amount Rs.*
Capital	1,00,000	Rent (Cr.)	2,100
Drawings	17,600	Railway freight on sales	16,940
Purchases	80,000	Carriage inwards	2,310
Sales	1,40,370	Office expenses	1,340
Purchases return	2,820	Printing and Stationery	660
Stock on April 01, 2004	11,460	Postage and Telegram	820
Bad debts	1,400	Sundry debtors	62,070
Bad debts reserve April 01, 2004	3,240	Sundry creditors	18,920
		Cash in bank	12,400
Rates and Insurance	1,300	Cash in hand	2,210
Discount (Cr.)	190	Office furniture	3,500
Bills receivable	1,240	Salaries and Commission	9,870
Sales returns	4,240	Addition to buildings	7,000
Wages	6,280		
Buildings	25,000		

Prepare the trading and profit and loss account and a balance sheet as on March 31, 2005 after keeping in view the following adjustments :

(i) Depreciate old building by Rs. 625 and addition to building at 2% and office furniture at 5%.
(ii) Write-off further bad debts Rs. 570.
(iii) Increase the bad debts reserve to 6% of debtors.
(iv) On March 31, 2005 Rs. 570 are outstanding for salary.
(v) Rent receivable Rs. 200 on March 31, 2005.
(vi) Interest on capital at 5% to be charged.
(vii) Unexpired insurance Rs. 240.
(viii) Stock was valued at Rs. 14,290 on March 31, 2005.

Solution

Books of Shri R. Lal
Trading and Profit and Loss Account
for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses		*Amount Rs.*	*Revenues/Gains*		*Amount Rs.*
Opening stock		11,460	Sales	1,40,370	
Purchases	80,000		*Less* Sales Return	(4,240)	1,36,130
Less Purchase return	(2,820)	77,180			
Carriage inwards		2,310			
Wages		6,280	Closing stock		14,290
Gross profit c/d		53,190			
		1,50,420			1,50,420
Railway freight on sales		16,940	Gross profit c/d		53,190
			Rent	2,100	
Office expenses		1,340	*Add* Accrued rent	200	2,300
Postage and Telegram		820	Discount		190
Printing and Stationery		660			
Salary and Commission	9,870				
Add Outstanding salary	570	10,440			
Rates and Insurance	1,300				
Less unexpired insurance	(240)	1,060			
Bad debts	1,400				
Add Further bad debts	570				
Add New bad debts provision	3,690 5660				
Less Old provision for bad debts	(3,240)	2,420			
Interest on capital		5,000			
Depreciation on building		625			
Depreciation on addition to building		140			
Depreciation on furniture		175			
Net profit (transferred to capital account)		16,060			
		55,680			55,680

Balance Sheet as at March 31, 2005

Liabilities		*Amount Rs.*	*Assets*		*Amount Rs.*
Sundry creditors		18,920	Cash at bank		12,400
Outstanding salaries		570	Cash in hand		2,210
Capital	1,00,000		Bills receivable		1,240
Add Net profit	16,060				
Add Interest on capital	5,000				
	1,21,060		Debtors	62,070	
			Less Further bad debts	(570)	
Less Drawings	(17,600)	1,03,460		61,500	
			Less New provision for bad debts	(3,690)	57,810
			Accrued rent		200
			Unexpired insurance		240
			Building	25,000	
			Less Depreciation	(625)	24,375
			Addition to building	7,000	
			Less Depreciation	(140)	6,860
			Office furniture	3,500	
			Less Depreciation	(175)	3,325
			Closing stock		14,290
		1,22,950			1,22,950

Illustration 4

Prepare the trading profit and loss account of M/s Mohit Traders as on 31 March 2006 and draw necessary Journal entries and balance sheet as on that date :

Debit Balances	*Amount Rs.*	*Credit Balances*	*Amount Rs.*
Opening stock	24,000	Sales	4,00,000
Purchases	1,60,000	Return outwards	2,000
Cash in hand	16,000	Capital	1,50,000
Cash at bank	32,000	Creditors	64,000
Return inwards	4,000	Bills payable	20,000
Wages	22,000	Commission received	4,000
Fuel and Power	18,000		
Carriage inwards	6,000		
Insurance	8,000		
Buildings	1,00,000		
Plant	80,000		
Patents	30,000		
Salaries	28,000		
Furniture	12,000		
Drawings	18,000		
Rent	2,000		
Debtors	80,000		
	6,40,000		6,40,000

Adjustments

		Rs.
(a)	Salaries outstanding	12,000
(b)	Wages outstanding	6,000
(c)	Commission is accrued	2,400
(d)	Depreciation on building 5% and plant 3%	
(e)	Insurance paid in advance	700
(f)	Closing stock	12,000

Solution

Books of Mohit Traders
Journal

Date	*Particulars*		*L.F.*	*Debit Amount Rs.*	*Credit Amount Rs.*
2005					
March 31	Salary A/c	Dr.		12,000	
	Wages A/c	Dr.		6,000	
	To Salary outstanding A/c				12,000
	To Wages outstanding A/c				6,000
	(Amount of salary and wages outstanding as on March 31, 2006)				
March 31	Prepaid Insurance A/c	Dr.		1,400	
	To Insurance A/c				1,400
	(Insurance paid in advance]				
March 31	Commission accrued A/c	Dr.		2,400	
	To Commission A/c				2,400
	(Commission accrued but not received)				
March 31	Depreciation A/c	Dr.		7,400	
	To Building A/c				5,000
	To Plant A/c				2,400
	(Depreciation charged on plant and building)				
March 31	Profit and Loss A/c	Dr.		1,23,700	
	To Capital A/c				1,23,700
	(Profit transferred to capital account)				

Books of Mohit Traders
Trading and Profit and Loss Account
for the year ended March 31, 2006

Dr. **Cr.**

Expenses /Losses		*Amount Rs.*	*Revenue/Gains*		*Amount Rs.*
Opening stock		24,000	Sales	4,00,000	
Purchases	1,60,000		*Less* Returns	(4,000)	3,96,000
Less returns	(2,000)	1,58,000	Closing stock		12,000
Wages	22,000				
Add Outstanding wages	6,000	28,000			
Fuel and Power		18,000			
Carriage inwards		6,000			
Gross profit c/d		1,74,000			
		4,08,000			4,08,000
Salary	28,000		Gross Profit b/d		1,74,000
Add Outstanding salary	12,000	40,000	Commission received	(4,000)	
Insurances	8,000		*Add* Accrued	2,400	6,400
Less Prepaid	(700)	7,300	commission		
Rent		2,000			
Depreciation on building		5,000			
Plants		2,400			
Net Profit (transferred to capital account)		1,23,700			
		1,80,400			1,80,400

Balance Sheet as at March 31, 2006

Liabilities		*Amount Rs.*	*Assets*	*Amount Rs.*
Creditors		64,000	Cash in hand	16,000
Bills payable		20,000	Cash at bank	32,000
Capital	1,50.000		Building	95,000
Add Net profit	1,23,700		Plant	77,600
	2,73,700		Patents	30,000
Less Drawings	(18,000)	2,55,700	Debtors	80,000
Outstanding salaries		12,000	Insurance prepaid	700
Outstanding wages		6,000	Commission accrued	2,400
			Furniture	12,000
			Closing stock	12,000
		3,57,700		3,57,700

Illustration 5

The following information has been extracted from the trial balance of M/s Randhir Transport Corporation.

Debit balances	*Amount Rs.*	*Credit balances*	*Amount Rs.*
Opening stock	40,000	Capital	2,70,000
Rent	2,000	Creditors	50,000
Plant and Machinery	1,20,000	Bills payable	50,000
Land and Buildings	2,55,000	Loan	1,10,000
Power	3,500	Discount	1,500
Purchases	75,000	Sales	1,50,000
Sales return	2,500	Provision for bad debts	1,000
Telegram and Postage	400	General reserves	50,000
Wages	4,500		
Salary	2,500		
Insurance	3,200		
Discount	1,000		
Repair and Renewals	2,000		
Legal charges	700		
Trade taxes	1,200		
Debtors	75,000		
Investment	65,000		
Bad debts	2,000		
Trade expenses	4,500		
Commission	1,250		
Travelling expenses	1,230		
Drawings	20,020		
	6,82,500		6,82,500

Adjustments

1. Closing stock for the year was Rs. 35,500.
2. Depreciation charged on plant and machinery 5% and land and building 6%.
3. Interest on drawing @ 6% and Interest on loan @ 5%.
4. Interest on investments @ 4%.
5. Further bad debts 2,500 and make provision for bad debts on debtors 5%.
6. Discount on debtors @ 2%.
7. Salary outstanding Rs. 200.
8. Wages outstanding Rs. 100.
9. Insurance prepaid Rs. 500.

You are required to make trading and profit and loss account and a balance sheet on March 31, 2005.

Solution

Books of Randhir Transport Corporation
Trading and Profit and Loss Account
for the year ended March 31, 2005

Expenses/Losses		*Amount Rs.*	*Revenue/Gains*		*Amount Rs.*
Opening stock		40,000	Sales	1,50,000	
Purchases		75,000	*Less* Sales return	(2,500)	1,47,500
Wages	4,500		Closing stock		35,500
Add Outstanding wages	100	4,600			
Power		3,500			
Gross profit c/d		59,900			
		1,83,000			1,83,000
Rent		2,000	Gross profit b/d		59,900
Telegram and Postage		400	Outstanding interest on investment		2,600
Salary	2,500		Discount		1,500
Add Outstanding salary	200	2,700	Interest on drawings		1,200
Insurance	3,200				
Less Prepaid	(500)	2,700			
Discount		1,000			
Repair and Renewals		2,000			
Legal charges		700			
Trade taxes		1,200			
Trade expenses		4,500			
Outstanding interest on loan		5,500			
Commission		1,250			
Travelling expenses		1,230			
Discount on debtors		1,450			
Depreciation on Plant and Machinery		6,000			
Depreciation on Land and Building		15,300			
Bad debts	2,000				
Add Further bad debts	2,500				
Add New provision	3,553				
	8,053				
Less Old provision	(1,000)	7,053			
Net Profit (transferred to capital account)		10,217			
		65,200			65,200

Balance Sheet as at March 31, 2005

Liabilities		*Amount Rs.*	*Assets*		*Amount Rs.*
Creditors		50,000	Debtors	75,000	
Bills payable		50,000	*Less* Further	(2,500)	
Loan	1,10,000		bad debts	72,500	
Add Outstanding interest	5,500	1,15,500	*Less* Discount	(1,450)	
General reserve		50,000		71,050	
Capital	2,70,000		*Less* New Provision	(3,553)	67,497
Add Net Profit	10,217		Investment		65,000
	2,80,217		Outstanding interest on investment		2,600
Less Drawings	(20,020)		Insurance pre-paid		500
	2,60,197				
Less Interest on drawings	1,200	2,58,997	Plant and Machinery		1,14,000
Outstanding salary		200	Land and Building		2,39,700
Outstanding wages		100	Closing stock		35,500
		5,24,797			5,24,797

Illustration 6

From the following balances of M/s Keshav Bros. You are required to prepare trading and profit and loss account and a balance sheet of March 31, 2005.

Debit balances	*Amount Rs.*	*Credit balances*	*Amount Rs.*
Plant and Machinery	1,30,000	Sales	3,00,000
Debtors	50,000	Return outwards	2,500
Interest	2,000	Creditors	2,50,000
Wages	1,200	Bills payable	70,000
Salary	2,500	Provision for bad debts	1,550
Carriage inwards	500	Capital	2,20,000
Carriage outwards	700	Rent received	10,380
Return inwards	2,000	Commission received	16,000
Factory rent	1,450		
Office rent	2,300		
Insurance	780		
Furniture	22,500		
Buildings	2,80,000		
Bills receivable	3,000		
Cash in hand	22,500		
Cash at bank	35,000		
Commission	500		
Opening stock	60,000		
Purchases	2,50,000		
Bad debts	3,500		
	8,70,430		8,70,430

Adjustment

(i) Provision for bad debts @ 5% and further bad debts Rs. 2,000.
(ii) Rent received in advance Rs. 6,000.
(iii) Prepaid insurance Rs. 200.
(iv) Depreciation on furniture @ 5%, plant and machinery @ 6%, building @ 7%.

Solution

Books of Keshav Bros.
Trading and Profit and Loss Account
for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses		*Amount Rs.*	*Revenue/Gains*		*Amount Rs.*
Opening stock		60,000	Sales	3,00,000	
Purchases	2,50,000		*Less* Return	(2,000)	2,98,000
Less Returns	(2,500)	2,47,500	Closing stock		70,000
Wages		1,200			
Carriage inwards		500			
Factory rent		1,450			
Gross profit c/d		57,350			
		3,68,000			3,68,000
Interest		2,000	Gross profit b/d		57,350
Salary		2,500	Rent received	10,380	
Carriage outwards		700	*Less* Advance rent	(6,000)	4,380
Office Rent		2,300	Commission received		16,000
Insurance	780				
Less Prepaid insurance	(200)	580			
Depreciation on furniture		1,125			
Depreciation on Plant and Machinery		7,800			
Depreciation on building		19,600			
Commission		500			
Bad debts	3,500				
Add Further bad debts	2,000				
Add New provision	2,400				
	7,900				
Less Old provision	(1,550)	6,350			
Net Profit (transferred to capital account)		34,275			
		77,730			77,730

Balance Sheet as at March 31, 2005

Liabilities		*Amount Rs.*	*Liabilities*		*Amount Rs.*
Creditors		2,50,000	Cash In hand		22,500
Bills payable		70,000	Cash at bank		35,000
Advance rent		6,000	Bills receivable		3,000
Capital	2,20,000				
Add Net profit	34,275	2,54,275	Prepaid insurance		200
			Debtors	50,000	
			Less Further	(2,000)	
			bad debts	48,000	
			Less New provision	(2400)	45,600
			Plant and Machinery		1,22,200
			Furniture		21,375
			Buildings		2,60,400
			Closing stock		70,000
		5,80,275			5,80,275

Illustration 7

The following information have been taken from the trial balance of M/s Fair Brothers Ltd. You are required to prepare the trading and profit and loss account and a balance sheet as at March 31, 2006.

Debit Balances	*Amount Rs.*	*Credit balances*	*Amount Rs.*
Cash	20,000	Sales	3,61,000
Wages	45,050	Loan 12% (1.7.2005)	40,000
Return outwards	4,800	Discount received	1,060
Bad debts	4,620	Return (Purchase)	390
Salaries	16,000	Creditors	60,610
Octroi	1,000	Capital	75,000
Charity	250		
Machinery	32,000		
Debtors (Including a dishonoured bill of Rs.1,600)	60,000		
Stock	81,600		
Purchases	2,60,590		
Repairs	3,350		
Interest on loan	1,200		
Sales tax	1,600		
Insurance	2,000		
Rent	4,000		
	5,38,060		5,38,060

Adjustments

1. Wages include Rs. 4,000 for erection of new machinery on April 01, 2005.
2. Provide 5% depreciation on furniture.
3. Salaried unpaid Rs.1,600.
4. Closing stock Rs. 81,850.
5. Create a provision at 5% on debtors.
6. Half the amount of bill is recoverable.
7. Rent is paid up to July 30, 2006.
8. Insurance unexpired Rs. 600.

Books of Fair Brothers Ltd.
Trading and Profit and Loss Account
for the year ended March 31, 2006

Dr. **Cr.**

Expenses/Losses		*Amount Rs.*	*Revenue/Gains*		*Amount Rs.*
Opening stock		81,600	Sales	3,61,000	
Purchases	2,60,590		*Less* Sales return	(4,800)	3,56,200
Less Purchases return	(390)	2,60,200	Closing stock		81,850
Wages	45,050				
Less Prepaid wages including erection of machines	(4,000)	41,050			
Octroi		1,000			
Gross profit c/d		54,200			
		4,38,050			4,38,050
Salaries	16,000		Gross profit b/d		54,200
Add Outstanding salary	1,600	17,600	Discount received		1,060
Repairs		3,350			
Bad debts	4,620				
Add Further bad debts	800				
Add New provision	2,960	8,380			
Interest on loan	1,200				
Add Outstanding interest	2,400	3,600			
Sales tax		1,600			
Insurance	2,000				
Less Prepaid insurance	(600)	1,400			
Charity		250			
Rent	4,000				
Less Prepaid rent	1,000	3,000			
Depreciation on machinery		1,800			
Net profit (transferred to capital account)		14,280			
		55,260			55,260

Balance Sheet as at March 31, 2006

Liabilities		*Amount Rs.*	*Assets*		*Amount Rs.*
Creditors		60,610	Cash		20,000
Outstanding salaries		1,600	Debtors	60,000	
Loan		40,000	*Less* Bad debts	(800)	
Outstanding interest		2,400	*Less* Provision	2,960	56,240
Capital	75,000		Prepaid rent		1,000
Add Net profit	14,280	89,280	Unexpired insurance		600
			Machinery	32,000	
			Add Erection	4,000	
			Wages	36,000	
			Less Depreciation	(1,800)	34,200
			Closing stock		81,850
		1,93,890			1,93,890

Illustration 8

From the following balance extracted from the books of of M/s Hariharan Brother, you are require to prepare the trading and profit and loss account and a balance sheet as on December 31, 2005.

Debit balance	*Amount Rs.*	*Credit balance*	*Amount Rs.*
Opening stock	16,000	Capital	1,00,000
Purchases	40,000	Sales	1,60,000
Return inwards	3,000	Return outwards	800
Carriage inwards	2,400	Apprenticeship premium	3,000
Carriage outwards	5,000	Bills payable	5,000
Wages	6,600	Creditors	31,600
Salaries	11,000		
Rent	2,200		
Freight and Dock	4,800		
Fire Insurance premium	1,800		
Bad debts	4,200		
Discount	1,000		
Printing and Stationery	500		
Rates and Taxes	700		
Travelling expenses	300		
Trade expenses	400		
Business premises	1,10,000		
Furniture	5,000		
Bills receivable	7,000		
Debtors	40,000		
Machine	9,000		
Loan	10,000		
Investment	6,000		
Cash in hand	500		
Cash at bank	7,000		
Proprietor's withdrawals	6,000		
	3,00,400		3,00,400

Adjustments

1. Closing stock Rs. 14,000.
2. Wages outstanding Rs. 600, Salaries Outstanding Rs. 1,000, Rent outstanding Rs. 200.
3. Fire Insurance premium includes Rs. 1,200 paid in July 01, 2005 to run for one year from July 01, 2005 to June 30, 2006.
4. Apprenticeship Premium is for three years paid in advance on January 01, 2005.
5. Stationery bill for Rs. 60 remain unpaid.
6. Depreciation on Premises @ 5%, furniture @ 10%, Machinery @ 10%.
7. Interest on loan given accrued for one year @ 7%.
8. Interest on investment @ 5% for half year to December 31, 2005 has accrued.
9. Interest on capital to be allowed at 5% for one year.
10. Interest on drawings to be charged to him ascertained for the year Rs. 160.

Solution

Books of Hariharan Bros.

Trading and Profit and Loss Account for the year ended December 31, 2005

Dr. **Cr.**

Expenses/Losses		*Amount Rs.*	*Revenue/Gains*		*Amount Rs.*
Opening stock		16,000	Sales	1,60,000	
Purchases	40,000		*Less* Sales return	(3,000)	1,57,000
Less purchases return	(800)	39,200	Closing stock		14,000
Wages	6,600				
Add Outstanding Wages	600	7,200			
Carriage inwards		2,400			
Freight and Dock		4,800			
Gross profit c/d		1,01,400			
		1,71,000			1,71,000
Salaries	11,000		Gross profit b/d		1,01,400
Add Outstanding salary	1,000	12,000	Apprenticeship	3,000	
Carriage outwords		5,000	premium		
Rates and Taxes		700	*Less* Advance premium	(2,000)	1,000
Printing and Stationery	500		Accrued interest on loan		700
Add Outstanding bill	60	560	Interest on drawings		160
Trade expenses		400	Accrued interest on		150
Travelling expenses		300	investment		
Fire insurance	1,800				
Less Prepaid insurance	(600)	1,200			
Bad debts		4,200			
Rent	2,200				
Add Outstanding rent	200	2,400			
Interest on capital		5,000			
Depreciation on Premises		5,500			
Depreciation on furniture		500			
Depreciation on machinery		900			
Discount		1,000			
Net profit (transferred to capital account)		63,750			
		1,03,410			1,03,410

Balance Sheet as at December 31, 2005

Liabilities		*Amount Rs.*	*Assets*		*Amount Rs.*
Capital	1,00,000		Premises	1,10,000	
Add Interest on capital	5,000		*Less* Depreciation	(5,500)	1,04,500
Add Net profit	63,750				
	1,68,750		Furniture		4,500
Less drawings	(6,000)				
	1,62,750		Machinery		8,100
Less Interest on drawings	(160)	1,62,590			
Creditors		31,600	Debtors		40,000
Bills payable		5,000	Bills receivable		7,000
Outstanding wages		600	Cash in hand		500
Outstanding salaries		1,000	Cash at bank		7,000
Outstanding rent		200	Loan	10,000	
Outstanding stationery		60	*Add* accrued interest	700	10,700
Apprenticeship premium (advance)		2,000	Investments	6,000	
			Add accrued interest	150	6,150
			Pre-paid insurance		600
			Closing stock		14,000
		2,03,050			2,03,050

Illustration 9

The following balances have been extracted from the trial balance of M/s Kolkata Ltd. You are required to prepare the trading and profit and loss account on dated March 31, 2006. Also prepare balance sheet on that date.

Debit balances	*Amount Rs.*	*Credit balances*	*Amount Rs.*
Opening stock	6,000	Capital	20,000
Furniture	1,200	Sales	41,300
Drawings	2,800	Purchases return	4,000
Cash in hand	3,000	Bank overdraft	4,000
Purchases	24,000	Bad debts provision	400
Sales return	2,000	Creditors	5,000
Establishment expenses	4,400	Commission	100
Bad debts	1,000	Bills payable	5,000
Debtors	10,000	Apprenticeship premium	500
Carriage	1,000		
Bills receivable	6,000		
Bank deposits	8,000		
Wages	1,000		
Trade expenses	500		
Bank charges	400		
General expenses	1,000		
Salaries	2,000		
Insurance	1,500		
Postage and Telegram	500		
Rent, Rates and Taxes	2,000		
Coal, Gas, Water	2,000		
	80,300		80,300

Adjustments

1. Outstanding salaries Rs. 100. Rent and taxes Rs. 200, Wages Rs. 100.
2. Unexpired insurance Rs. 500.
3. Commission is received in advances Rs. 50.
4. Interest Rs. 500 is to be received on bank deposits.
5. Interest on bank overdraft Rs. 750.
6. Depreciation on furniture @ 10%.
7. Closing stock Rs. 9,000.
8. Further bad debts Rs. 200 New provision @ 5% on debtors.
9. Apprenticeship premium received in advance Rs. 100.
10. Interest on drawings @ 6%.

Solution

Books of Kolkata Ltd.

Trading and Profit and Loss Account for the year ended as at March 31, 2006

Dr. **Cr.**

Expenses /Losses		*Amount Rs.*	*Revenue/Gains*		*Amount Rs.*
Opening stock		6,000	Sales	41300	
Purchases	24,000		*Less* sales return	(2,000)	39,300
Less purchases return	(4,000)	20,000	Closing stock		9,000
Wages	1,000				
Add Outstanding wages	100	1,100			
Coal, Gas, Water		2,000			
Gross profit c/d		19,200			
		48,300			48,300
Establishment expenses		4,400	Gross profit b/d		19,200
Carriage		1,000	Commission	100	
Trade expenses		500	*Less* Advance commission	(50)	50
Bank charges		400	Accrued interest on deposits		500
General expenses		1,000	Apprenticeship premium	500	
Salaries	2,000		*Less* Advance received	100	400
Add Outstanding salary	100	2,100	Interest on drawings		168
Insurance	1,500				
Less Prepaid insurance	(500)	1,000			
Postage and Telegram		500			
Rent, rates and Taxes		2,200			
Interest on bank overdraft		750			
Bad debts	1,000				
Add Further bad debts	200				
Add New provision	490				
	1,690				
Less Old provision	(400)	1,290			
Depreciation on furniture		120			
Net profit (transferred to capital account)		5,058			
		20,318			20,318

Balance Sheet as at March 31, 2006

Liabilities		*Amount Rs.*	*Assets*		*Amount Rs.*
Capital	2,00,00		Insurance prepaid		500
Net profit	5,058		Bank deposits	8,000	
	25,058				
Less Drawings	(2,800)		*Add* outstanding interest	500	8,500
	22,258				
Less Interest on drawings	(168)	22,090	Furniture		1,080
Creditors		5,000	Cash in hand		3,000
Commission received in advance		50	Debtors	10,000	
Apprenticeship premium		100	*Less* Further bad debts	(200) 9,800	
Outstanding wages		100	*Less* Provision for bad debts	(490)	9,310
Outstanding salaries		100	Bills receivable		6,000
Outstanding rent, rates, taxes		200	Closing stock		9,000
Bank overdraft	4,000				
Add Outstanding interest	750	4,750			
Bills payable		5,000			
		37,390			37,390

Illustration 10

Prepare the trading and profit and loss account of M/s Roni Plastic Ltd. from the following trial balance and a balance sheet as at March 31, 2006.

Debit balances	*Amount Rs.*	*Credit balances*	*Amount Rs.*
Drawings	6,000	Creditors	16,802
Sundry debtors	38,200	Capital	60,000
Carriage outwards	2,808	Loan on mortgage	17,000
Establishment expenses	16,194	Bad debts provision	1,420
Interest on loan	400	Sales	2,22,486
Cash in hand	6,100	Purchases return	2,692
Stock	11,678	Discount	880
Motor car	18,000	Bills payable	5,428
Cash at bank	9,110	Rent received	500
Land and Buildings	24,000		
Bad debts	1,250		
Purchases	1,34,916		
Sales return	15,642		
Advertisement	4,528		
Carriage inward	7,858		
Rates, taxes, insurance	7,782		
General expenses	8,978		
Bills receivable	13,764		
	3,27,208		3,27,208

Adjustments

1. Depreciation on land and building at @ 5% and Motor vehicle at @ 15%.
2. Interest on loan is @ 5% taken on April 01, 2005.
3. Goods costing Rs1,200 were sent to a customer on sale on return basis for Rs. 1,400 on March 30, 2006 and has been recorded in the books as actual sales.
4. Salaries amounting to Rs. 1,400 and Rates amounting to Rs. 800 are due.
5. The bad debts provision is to be brought up to @ 5% on sundry debtors.
6. Closing stock was Rs. 13,700.
7. Goods costing Rs. 1,000 were taken away by the proprietor for his personal use but not entry has been made in the books of account.
8. Insurance pre-paid Rs. 350.
9. Provide the manager's commission at @ 5% on Net profit after charging such commission.

Solution

Books of Roni's Plastic Ltd.

Trading and Profit and Loss Account for the year ended March 31, 2006

Dr. **Cr.**

Expenses/Losses		*Amount Rs.*	*Revenue/Gains*		*Amount Rs.*
Opening stock		11,678	Sales	2,22,486	
Purchases	1,34,916		*Less* Sales return	15,642	
				2,06,844	
Less Purchases return	2,692		*Less* Return basis	(1,400)	2,05,444
	1,32,224				
Less Goods withdrawn	(1,000)	1,31,224	Closing stock		13,700
Carriage inwards		7,858			
Gross profit c/d		68,384			
		2,19,144			2,19,144
Outstanding salaries		1,400	Gross profit b/d		68,384
Carriage outwards		2,808	Discount		880
Establishment expenses		16,194	Rent		500
Bad debts	1,250				
Add New provision	1,840				
	3,090				
Less Old provision	(1,420)	1,670			
Rates and Taxes	7,782				
Less Prepaid	(350)				
	7,432				
*Add O*utstanding	800	8,232			
Advertisement		4,528			
Interest on loan	400				
*Add O*utstanding Interest	450	850			
General expenses		8,978			
Depreciation on :					
Land and Building	1,200				
Motor car	2,700	3,900			
Manager commission		1,010			
Net profit (transferred to capital account)		20,194			
		69,764			69,764

Balance Sheet as at March 31, 2006

Liabilities		*Amount Rs.*	*Assets*		*Amount Rs.*
Capital	60,000		Cash in hand		6,100
Add Net profit	20,194				
	80,194		Cash at bank		9,110
Less Drawings	(6,000)				
	(74,194)		Bills receivable		13,764
Less Goods withdrawn	1,000	73,194	Debtors	38,200	
loan	17,000		*Less* sales	(1,400)	
			return basis	36,800	
Add interest	450	17,450	*Less* New provisions	(1,840)	34,960
Bills payable		5,428	Land and Building	24,000	
			Less Depreciation	(1,200)	22,800
Creditors		16,802	Motor car	18,000	
			Less Depreciation	(2,700)	15,300
Outstanding Salaries		1,400	Prepaid insurance		350
Outstanding Rates Taxes		800	Closing stock		13,700
Manager commission		1,010			
		1,16,084			1,16,084

10.13 Methods of Presenting the Financial Statements

The financial statements, i.e. trading and profit and loss account and balance sheet can be presented in two ways:

(1) Horizontal form
(2) Vertical form

Under horizontal form of presentation, items are shown side by side in the trading and profit and loss account and also in the balance sheet as we are doing so far. This format is rather technical in nature and is not easily comprehensible for many users. Hence, now-a-days, most firms present them in a simpler and more intelligible form called a narrative style or vertical presentation. Under vertical presentation, the final accounts are prepared in a form of statement with different items being shown on below the other in a purposeful sequence. Under vertical presentation, the trading and profit and loss account will appear as shown in figure 10.3.

Income Statement for the period ended .....

Particulars	*Amount*	*Amount Rs.*
Sales (Gross)		...
Less Returns	...	...
Net sales		
Cost of goods sold	...	
Opening stock	...	
Purchases ...	...	
Less Returns ...	...	...
Carriage Inwards	...	
Wages	...	
Cost of goods available for sale	...	
Less Closing stock		...
Gross Profit		...
Operaing Expenses		
(a) *Selling expenses*		
Advertising	...	
Discount	...	
Allowances	...	
Bad debts and Provisions	...	
Carriage outwards	...	
Total selling expenses		...
(b) *General and Administration expenses*		...
Salaries	...	
Rent and Rates	...	
Insurance	...	
Depreciation	...	
Postage	...	
Repairs	...	
General expenses	...	...
Total operating expenses	...	...
Net Income from operations (Operating profit)		...
Other Income (*Non-operating gains*)		
Interest earned	...	
Commission earned	...	
Profit on sale of fixed assets	...	...
Less Deductions (Non-operating expenses)		
Interest paid	...	
Loss by fire	...	
Net non-operating gains	...	...
Net income (Net profit)		...

Under the vertical presentation, the Balance Sheet will appear as follows :

Balance Sheet as on .....

Particulars	*Amount*	*Amount Rs.*
Current Assets		
Cash in hand	...	
Cash at bank	...	
Bills receivable	...	
Accrued income	...	
Debtors	...	
Stock	...	
Prepaid expenses	...	
Total current assets		...
Less Current Liabilities		
Bank overdraft		
Outstanding expenses	...	
Bills payable	...	
Trade creditors	...	
Income received in advance	...	
Total current liabilities	...	...
Net working capital		
(Current assets and Current liabilities)		...
Fixed Assets		
Furniture and Fixtures		
Patents	...	
Plants and Machhinery	...	
Building	...	
Land	...	
Goodwill	...	
Total fixed assets	...	
Total assets (After paying current liabilities)		...
Capital Employed		...
Long-term liabilities		
Loan		
Mortgage	...	
Total long-term liabilities	...	
Net assets (being the difference between		
total assets and long-term liabilities)		...
Capital (Proprietor)		
Capital in the begining		...
Add Capital introduced during the current year	...	
Interest on capital, salary, etc.	...	
Profit for the current year	...	
Less Drawings during the current year	...	
Interest on drawing	...	
Loss for the current year	...	
Total capital of the proprietor at the end of the year		...

Fig. 10.3 : *Showing vertical presentation of financial statements*

Illustration 11

From the following balances extracted from the books of M/s Rohit Traders, prepare the profit and loss account and balance sheet in the vertical form as on March 31, 2006.

Debit Balances	*Amount Rs.*	*Credit Balances*	*Amount Rs.*
Opening stock	11,520	Capital	1,40,000
Purchases	81,000	Return outwards	400
Debtors	28,000	Creditors	12,600
Discounts	2,000	Commission	5,000
Carriage outwards	6,000		
Drawings	10,500	Sales	1,98,000
Insurance	1,200	Long-terms loan	12,000
Salaries	30,000		
Investments	20,000		
Motor car	15,000		
Plants	40,000		
Land and Building	80,000		
Carriage inwards	4,080		
Legal charges	3,200		
Audit fee	3,200		
Fuel and Power	9,460		
Wages	10,960		
Return inwards	1,360		
Cash at bank	5,200		
Cash in hand	2,000		
Interest	2,000		
Bad debts	1,320		
	3,68,000		3,68,000

Adjustments

Closing stock Rs. 4,000
Depreciation on Plant and Buildings @ 10%.

Solution

Books of Rohit Traders
Profit and Loss Account
for the year ended March 31, 2006

Particulars			*Amount Rs.*	*Amount Rs.*
A	Net Sales		1,98,000	
	Less Sales return		[1,360]	1,96,640
B	Cost of goods sold			
	Opening stock		11,520	
	Purchase	81,000		
	Less Purchases return	(400)	80,600	
	Carriage Inwards		4,080	
	Fuel and Power		9,460	
	Wages		10,960	
	Cost of goods available for sale		1,16,620	
	Less Closing stock		(4,000)	1,12,620
C	Gross Profit	{A-B}		**84,020**
D	Operating expenses			
	(a) Administrative Expenses			
	Insurance		1,200	
	Salaries		30,000	
	Legal charges		3,200	
	Audit fee		3,200	
	Depreciation (Rs. 4,000 + Rs. 8,000)		12,000	
			49,600	
	(b) Selling and Distribution Expenses			
	Carriage outwards		6,000	
	Discount		2,000	
	Bad debts		1,320	
	Total operating expenses	[a+b]		58,920
E	Net operating profit	[C-D]		25,100
F	Non-operating incomes			
	Commission earned		5,000	
	Less Interest paid		(2,000)	3,000
G	Net profit transferred to capital account			28,100

Balance sheet of Rohit Traders as at March 31,2006

Particulars		*Amount Rs.*	*Amount Rs.*
Sources of firm's funds			
a Proprietors fund			
Opening capital		1,40,000	
Add Net profit		28,100	
		1,68100	
Less Drawings		(10,500)	1,57,600
b Long -term loan			12,000
			1,69,600
Application of Funds			
(i) Cash In hand	2,000		
Cash at bank	5,200		
Closing stock	4,000		
Debtors	28,000	39,200	
(ii) *Less* Creditors		12,600	26,600
(a) Investments			20,000
(b) Fixed assets :			
Motor car	15,000		
Plants	36,000		
Land and Buildings	72,000		1,23,000
			1,69,600

Key Terms Introduced in the Chapter

- Outstanding /Accrued expenses
- Accrued Incomes
- Depreciation
- Provision for doubtful debts
- Managers commission
- Horizontal form
- Prepaid/Unexpired expenses
- Income received in advance
- Bad Debts
- Provision for discount on debtors
- Interest on capital
- Vertical form

Summary with Reference to Learning Objectives

1 *Need for adjustments* : For the preparation of financial statements, it is necessary that all the adjustments arising out of the accrual basis of accounting are made at the end of the accounting period. Another important consideration in the preparation of final accounts with adjustments, is the distinction between capital and revenue items. Entries which are recorded to give effect to these adjustments are known as adjusting entries.

2 *Outstanding expenses* : At the end of the accounting period sometimes a business enterprises is left with some unpaid expenses due to one reason or another. Such expenses are termed as outstanding expenses.

3. *Prepaid expenses* : At the end of the accounting year, it is found that the benefits of some expenses have not been fully received; a portion of total benefits would be received in the next accounting year. That portion of the expense, the benefit of which will be received during the next accounting period is known as 'prepaid expenses'.
4. *Accrued Income* : These are certain items is received by a business enterprise but the whole amount of it does not belong to the next period. Such portion of income which belongs to the next accounting period is income received in advance and is known as "unearned income".
5. *Depreciation* : Depreciation is the decline in the value of an asset an account of wear and tear or passage of time or with. It actually amounts to writing off a portion of the cost of an asset which has been used in the business for the purpose of earning profits. In the balance sheet, the asset is shown at loss minus the amount of depreciation.

6 *Provisions for bad and doubtful debts* : It is a normal feature of business operations that some debts prove irrecoverable which means that the amount to the realised from them becomes had to view of this. An attempt is made to bring in a certain element of certainty in the amount in respect of bad debts charged every year against incomes.

Questions for Practice

Short Answers

1. Why is it necessary to record the adjusting entries in the preparation of final accounts?
2. What is meant by closing stock? Show its treatment in final accounts?
3. State the meaning of:
   (a) Outstanding expenses
   (b) Prepaid expenses
   (c) Income received in advance
   (d) Accrued income
4. Give the Performa of income statement and balance in vertical form.
5. Why is it necessary to create a provision for doubtful debts at the time of preparation of final accounts?
6. What adjusting entries would you record for the following :
   (a) Depreciation
   (b) Discount on debtors
   (c) Interest on capital
   (d) Manager's commission
7. What is meant by provision for discount on debtors?
8. Give the journal entries for the following adjustments :
   (a) Outstanding salary Rs. 3,500.
   (b) Rent unpaid for one month at Rs. 6,000 per annum.
   (c) Insurance prepaid for a quarter at Rs. 16,000 per annum.
   (d) Purchase of furniture costing Rs. 7,000 entered in the purchases book.

Long Answers

1. What are adjusting entries? Why are they necessary for preparing final accounts?
2. What is meant by provision for doubtful debts? How are the relevant accounts prepared and what journal entries are recorded in final accounts? How is the amount for provision for doubtful debts calculated?
3. Show the treatment of prepaid expenses depreciation, closing stock at the time of preparation of final accounts when:
   (a) When given inside the trial balance?
   (b) When given outside the trial balance?

Numerical Questions

1. Prepare a trading and profit and loss account for the year ending December 31, 2005. from the balances extracted of M/s Rahul Sons. Also prepare a balance sheet at the end of the year.

Account Title	*Amount Rs.*	*Account Title*	*Amount Rs.*
Stock	50,000	Sales	1,80,000
Wages	3,000	Purchases return	2,000
Salary	8,000	Discount received	500
Purchases	1,75,000	Provision for bad debts	2,500
Sales return	3,000	Capital	3,00,000
Sundry Debtors	82,000	Bills payable	22,000
Discount allowed	1,000	Commission received	4,000
Insurance	3,200	Rent	6,000
Rent Rates and Taxes	4,300	Loan	34,800
Fixtures and fittings	20,000		
Trade expenses	1,500		
Bad debts	2,000		
Drawings	32,000		
Repair and renewals	1,600		
Travelling expenses	4,200		
Postage	300		
Telegram expenses	200		
Legal fees	500		
Bills receivable	50,000		
Building	1,10,000		
	5,51,800		5,51,800

Adjustments

1. Commission received in advance Rs.1,000.
2. Rent receivable Rs. 2,000.
3. Salary outstanding Rs. 1,000 and insurance prepaid Rs. 800.

4. Further bad debts Rs. 1,000 and provision for bad debts @ 5% on debtors and discount on debtors @ 2%.
5. Closing stock Rs. 32,000.
6. Depreciation on building @ 6% p.a.

(*Ans* : Gross loss Rs.17,000 ; Net loss Rs.43,189 ; Total balance sheet Rs.2,83,611)

2. Prepare a trading and profit and loss account of M/s Green Club Ltd. for the year ending December 31, 2005. from the following figures taken from his trial balance :

Account Title	*Amount Rs.*	*Account Title*	*Amount Rs.*
Opening stock	35,000	Sales	2,50,000
Purchases	1,25,000	Purchase return	6,000
Return inwards	25,000	Creditors	10,000
Postage and Telegram	600	Bills payable	20,000
Salary	12,300	Discount	1,000
Wages	3,000	Provision for bad debts	4,500
Rent and Rates	1,000	Interest received	5,400
Packing and Transport	500	Capital	75,000
General expense	400		
Insurance	4,000		
Debtors	50,000		
Cash in hand	20,000		
Cash at bank	40,000		
Machinery	20,000		
Lighting and Heating	5,000		
Discount	3,500		
Bad debts	3,500		
Investment	23,100		
	3,71,900		3,71,900

Adjustments

1. Depreciation charged on machinery @ 5% p.a.
2. Further bad debts Rs.1,500, discount on debtors @ 5% and make a provision on debtors @ 6%.
3. Wages prepaid Rs.1,000.
4. Interest on investment @ 5% p.a.
5. Closing stock 10,000.

(*Ans.* : Gross Profit Rs.79.000 ; Net Profit Rs.52,565 ; Total Balance Sheet Rs.1,57,565).

3 The following balances has been extracted from the trial of M/s Runway Shine Ltd. Prepare a trading and profit and loss account and a balance sheet as on December 31, 2005.

Account Title	*Amount Rs.*	*Account Title*	*Amount Rs.*
Purchases	1,50,000	Sales	2,50,000
Opening stock	50,000	Return outwards	4,500
Return inwards	2,000	Interest received	3,500
Carriage inwards	4,500	Discount received	400
Cash in hand	77,800	Creditors	1,25,000
Cash at bank	60,800	Bill payable	6,040
Wages	2,400	Capital	1,00,000
Printing and Stationery	4,500		
Discount	400		
Bad debts	1,500		
Insurance	2,500		
Investment	32,000		
Debtors	53,000		
Bills receivable	20,000		
Postage and Telegraph	400		
Commission	200		
Interest	1,000		
Repair	440		
Lighting Charges	500		
Telephone charges	100		
Carriage outward	400		
Motor car	25,000		
	4,89,440		4,89,440

Adjustments

1. Further bad debts Rs. 1,000. Discount on debtors Rs. 500 and make a provision on debtors @ 5%.
2. Interest received on investment @ 5%.
3. Wages and interest outstanding Rs. 100 and Rs. 200 respectely.
4. Depreciation charged on motor car @ 5% p.a.
5. Closing Stock Rs. 32,500.

(*Ans.* : Gross profit Rs. 78,000 ; Net profit Rs. 66,060, Total balance sheet Rs. 2,97,400)

4. The following balances have been extracted from the trial of M/s Haryana Chemical Ltd. You are required to prepare a trading and profit and loss account and balance sheet as on December 31, 2005 from the given information.

Account Title	*Amount Rs.*	*Account Title*	*Amount Rs.*
Opening stock	50,000	Sales	3,50,000
Purchases	1,25,500	Purchases return	2,500
Sales return	2,000	Creditors	25,000
Cash in hand	21,200	Rent	5,000
Cash at bank	12,000	Interest	2,000
Carriage	100	Bills payable	1,71,700
Free hold land	3,20,000	Capital	3,00,000
Patents	1,20,000		
General Expenses	2,000		
Sundry Debtors	32,500		
Building	86,000		
Machinery	34,500		
Insurance	12,400		
Drawings	10,000		
Motor vehicle	10,500		
Bad debts	2,000		
Light and Water	1,200		
Trade expenses	2,000		
Power	3,900		
Salary and Wages	5,400		
Loan a 15% (01.09.2005)	3,000		
	8,56,200		8,56,200

Adjustments

1. Closing stock was valued at the end of the year Rs. 40,000.
2. Salary amounting Rs. 500 and trade expense Rs. 300 are due.
3. Depreciation charged on building and machinery are @ 4% and @ 5% respectively.
4. Make a provision of @ 5% on sundry debtors.

(*Ans.* : Gross profit Rs. 2,11,000 ; Net profit Rs.1,85,560 ; Total balance sheet Rs.6,73,060)

5. From the following information prepare trading and profit and loss account of M/s Indian sports house for the year ending December 31, 2005.

Account Title	*Amount Rs.*	*Account Title*	*Amount Rs.*
Drawings	20,000	Capital	2,00,000
Sundry debtors	80,000	Return outwards	2,000
Bad debts	1,000	Bank overdraft	12,000
Trade Expenses	2,400	Provision for bad debts	4,000
Printing and Stationery	2,000	Sundry creditors	60,000
Rent Rates and Taxes	5,000	Bills payable	15,400
Feright	4,000	Sales	2,76,000
Return inwards	7,000		
Opening stock	25,000		
Purchases	1,80,000		
Furniture and Fixture	20,000		
Plant and Machinery	1,00,000		
Bills receivable	14,000		
Wages	10,000		
Cash in hand	6,000		
Discount allowed	2,000		
Investments	40,000		
Motor car	51,000		
	5,69,400		5,69,400

Adjustments

1. Closing stock was Rs.45,000.
2. Provision for bad debts is to be maintained @ 2% on debtors.
3. Depreciation charged on : furniture and fixture @ 5%, plant and Machinery @ 6% and motor car @ 10%.
4. A Machine of Rs.30,000 was purchased on July 01, 2005.
5. The manager is entitle to a commission of @ 10% of the net profit after charging such commission.

(*Ans.* : Gross profit Rs.1,01,000 ; Net profit Rs.68,909 ; Total balance sheet Rs. 3,43,200 ; Manager's commission Rs.6,891)

6. Prepare the trading and profit and loss account and a balance sheet of M/s Shine Ltd. from the following particulars.

Account Title	*Amount Rs.*	*Account Title*	*Amount Rs.*
Sundry debtors	1,00,000	Bills payable	85,550
Bad debts	3,000	Sundry creditors	25,000
Trade expenses	2,500	Provision for bad debts	1,500
Printing and Stationary	5,000	Return outwards	4,500
Rent, Rates and Taxes	3,450	Capital	2,50,000
Freight	2,250	Discount received	3,500
Sales return	6,000	Interest received	11,260
Motor car	25,000	Sales	1,00,000
Opening stock	75,550		
Furniture and Fixture	15,500		
Purchases	75,000		
Drawings	13,560		
Investments	65,500		
Cash in hand	36,000		
Cash in bank	53,000		
	4,81,310		4,81,310

Adjustments

1. Closing stock was valued Rs. 35,000.
2. Depreciation charged on furniture and fixture @ 5%.
3. Further bad debts Rs. 1,000. Make a provision for bad debts @ 5% on sundry debtors.
4. Depreciation charged on motor car @ 10%.
5. Interest on drawing @ 6%.
6. Rent, rates and taxes was outstanding Rs.200.
7. Discount on debtors 2%.

(*Ans.* : Gross loss Rs,17,050 ; Net loss Rs.27,344 ; Total balance sheet Rs. 3,19,032).

7. Following balances have been extracted from the trial balance of M/s Keshav Electronics Ltd. You are required to prepare the trading and profit and loss account and a balance sheet as on December 31, 2005.

Account Title	*Amount Rs.*	*Account Title*	*Amount Rs.*
Opening stock	2,26,000	Sales	6,80,000
Purchases	4,40,000	Return outwards	15,000
Drawings	75,000	Creditors	50,000
Buildings	1,00,000	Bills payable	63,700
Motor van	30,000	Interest receivced	20,000
Freight inwards	3,400	Capital	3,50,000
Sales return	10,000		
Trade expense	3,300		
Heat and Power	8,000		
Salary and Wages	5,000		
Legal expense	3,000		
Postage and Telegram	1,000		
Bad debts	6,500		
Cash in hand	79,000		
Cash at bank	98,000		
Sundry debtors	25,000		
Investments	40,000		
Insurance	3,500		
Machinery	22,000		
	11,78,700		11,78,700

The following additional information is available :

1. Stock on December 31, 2005 was Rs. 30,000.
2. Depreciation is to be charged on building at 5% and motor van at 10%.
3. Provision for doubtful debts is to be maintained at 5% on Sundry Debtors.
4. Unexpired insurance was Rs. 600.
5. The Manager is entitled to a commissiion @ 5% on net profit before charging such commission.

(*Ans.* : Gross profit Rs,37,600 ; Net profit Rs.25,381 ; Total balance sheet Rs.4,15,350 ; Manager's commission Rs.1,269)

8. From the following balances extracted from the books of Raga Ltd. prepare a trading and profit and loss account for the year ended December 31, 2005 and a balance sheet as on that date.

Account Title	*Amount Rs.*	*Account Title*	*Amount Rs.*
Drawings	20,000	Sales	2,20,000
Land and Buildings	12,000	Capital	1,01,110
Plant and Machinery	40,000	Discount	1,260
Carriage inwards	100	Apprentice premium	5,230
Wages	500	Bills payable	1,28,870
Salary	2,000	Purchases return	10,000
Sales return	200		
Bank charges	200		
Coal, Gas and Water	1,200		
purchases	1,50,000		
Trade Expenses	3,800		
Stock (Opening)	76,800		
Cash at bank	50,000		
Rates and Taxes	870		
Bills receivable	24,500		
Sundry debtors	54,300		
Cash in hand	30,000		
	4,66,470		4,66,470

The additional information is as under :

1. Closing stock was valued at the end of the year Rs, 20,000.
2. Depreciation on plant and machinery charged at 5% and land and building at 10%.
3. Discount on debtors at 3%.
4. Make a provision at 5% on debtors for bad debts.
5. Salary outstanding was Rs.100 and Wages prepaid was Rs. 40.
6. The manager is entitled a commission of 5% on net profit after charging such commission.

(*Ans.* : Gross profit Rs.21,240 ; Net profit Rs.12,664 ; Total balance sheet Rs.2,23,377 ; Manager's commission Rs.633)

9. From the following balances of M/s Jyoti Exports, prepare trading and profit and loss account for the year ended March 31, 2006 and balance sheet as on this date.

Account Title	*Debit* *Amount Rs.*	*Account Title*	*Credit* *Amount Rs.*
Sundry debtors	9,600	Sundry creditors	2,500
Opening stock	22,800	Sales	72,670
Purchases	34,800	Purchases returns	2,430
Carriage inwards	450	Bills payable	15,600
Wages	1,770	Capital	42,000
Office rent	820		
Insurance	1,440		
Factory rent	390		
Cleaning charges	940		
Salary	1,590		
Building	24,000		
Plant and Machinery	3,600		
Cash in hand	2,160		
Gas and Water	240		
Octroi	60		
Furniture	20,540		
Patents	10,000		
	1,35,200		1,35,200

Closing stock Rs.10,000.

1. To provision for bad debts is to be maintained at 5 per cent on sundry debtors.
2. Wages amounting to Rs.500 and salary amounting to Rs. 350 are outstanding.
3. Factory rent prepaid Rs. 100.
4. Depreciation charged on Plant and Machinery @ 5% and Building @ 10%.

5. Outstanding insurance Rs.100.

(*Ans* : Gross profit Rs.23,250 ; Net profit Rs.16,370 ; Total balance Sheet 63,530)

10. The following balances have been extracted from the books of M/s Green House for the year ended December 31, 2005, prepare trading and profit and loss account and balance sheet as on this date.

Account Title	*Amount Rs.*	*Account Title*	*Amount Rs.*
Purchases	80,000	Capital	2,10,000
Bank balance	11,000	Bills payable	6,500
Wages	34,000	Sales	2,00,000
Debtors	70,300	Creditors	50,000
Cash in hand	1,200	Return outwards	4,000
Legal expenses	4,000		
Building	60,000		
Machinery	120,000		
Bills receivable	7,000		
Office expenses	3,000		
Opening stock	45,000		
Gas and fuel	2,700		
Freight and Carriage	3,500		
Factory lighting	5,000		
Office furniture	5,000		
Patent right	18,800		
	4,70,500		4,70,500

adjustments :

(a) Machinery is depreciated at 10% and buildings depreciated at 6%.
(b) Interest on capital @ 4%.
(c) Outstanding wages Rs. 50.
(d) Closing stock Rs.50,000.

(*Ans* : Gross profit Rs.83,750 ; Net Profit Rs.52,750 ; Total balance sheet Rs.3,19,250).

11. From the following balances extracted from the book of M/s Manju Chawla on March 31, 2005. You are requested to prepare the trading and profit and loss account and a balance sheet as on this date.

Account Title	*Amount Rs.*	*Amount Rs.*
Opening stock	10,000	
Purchases and Sales	40,000	80,000
Returns	200	600
Wages	6,000	
Dock and cleaning charges	4,000	
Lighting	500	
Misc. Income		6,000
Rent		2,000
Capital		40,000
Drawings	2,000	
Debtors and Creditors	6,000	7,000
Cash	3,000	
Investment	6,000	
Patent	4,000	
Land and Machinery	43,000	
Donations and Charity	600	
Sales tax collected		1,000
Furniture	11,300	
	1,36,600	1,36,600

Closing stock was Rs.2,000.

(a) Interest on drawings @ 7% and interest on capital @ 5%.
(b) Land and Machinery is depreciated at 5%.
(c) Interest on investment @ 6%.
(d) Unexpired rent Rs.100.
(e) Charge 5% depreciation on furniture.

(*Ans.* : Gross profit Rs.30,900 ; Net profit Rs.26,185 ; Total balance sheet Rs.71,185).

12. The following balances were extracted from the books of M/s Panchsheel Garments on December 31, 2005.

Account Title	*Debit Amount Rs.*	*Account Title*	*Credit Amount Rs.*
Opening stock	16,000	Sales	1,12,000
Purchases	67,600	Return outwards	3,200
Return Inwards	4,600	Discount	1,400
Carriage inwards	1,400	Bank overdraft	10,000
General expenses	2,400	Commission	1,800
Insurance	4,000	Creditors	16,000
Scooter expenses	200	Capital	50,000
Salary	8,800		
Cash in hand	4,000		
Scooter	8,000		
Furniture	5,200		
Buildings	65,000		
Debtors	6,000		
Wages	1,200		
	1,94,400		1,94,400

Prepare the trading and profit and loss account for the year ended December, 31 and a balance sheet as on that date.

(a) Unexpired insurance Rs 1,000.
(b) Salary due but not paid Rs. 1800.
(c) Wages outstanding Rs. 200.
(d) Interest on capital 5%.
(e) Scooter is depreciated @ 5%.
(f) Furniture is depreciated Rs.@ 10%.

(*Ans.* : Gross profit Rs.39,200 ; Net profit Rs.22,780 ; Total balance sheet Rs.98,780).

13. Prepare the trading and profit and loss account and balance sheet of M/s Control Device India on December 31, 2006 from the following balance as on that date.

Account Title	*Debit Amount Rs.*	*Credit Amount Rs.*
Drawings and Capital	19,530	67,500
Purchase and Sales	45,000	1,12,500
Salary and Commission	25,470	1,575
Carriage	2,700	
Plant and Machinery	27,000	
Furniture	6,750	
Opening stock	42,300	
Insurnace premium	2,700	
Interest		7,425
Bank overdraft		24,660
Rent and Taxes	2,160	
Wages	11,215	
Returns	2,385	1,440
Carriage outwards	1,485	
Debtors and Creditors	36,000	58,500
General expenses	6,975	
Octroi	530	
Investment	41,400	
	2,73,600	2,73,600

Closing stock was valued Rs. 20,000.

(a) Interest on capital @ 10%.
(b) Interest on drawings @ 5%.
(c) Wages outstanding Rs.50.
(d) Outstanding salary Rs.20.
(e) Provide a depreciation @ 5% on plant and machinery.

(f) Make a 5% provision on debtors.

(*Ans.* : Gross profit Rs.29,760 ; Net loss Rs.8,973 ; Total balance sheet Rs.1,28,000)

14. The following balances apperead in the trial balance of M/s Kapil Traders as on March 31, 2006

	Rs.
Sundry debtors	30,500
Bad debts	500
Provision for bad debts	2,000

The partners of the firm agreed to records the following adjustments in the books of the Firm: Further bad debts Rs.300. Maintain provision for bad debts 10%. Show the following adjustments in the bad debts account, provision account, debtors account, profit and loss account and balance sheet.

(*Ans* ; Dr. Profit and Loss account Rs.1,820)

15. Prepare the bad debts account, provision for account, profit and loss account and balance sheet from the following information as on December 31, 2005

	Rs.
Debtors	80,000
Bad debts	2,000
Provision for bad debts	5,000

Adjustments :

Bad debts Rs.500 Provision on debtors @ 3%.

(*Ans* : Credit Profit and Loss account Rs.115)

Checklist to Test Your Understanding

1. (c), 2. (d), 3. (b), 4. (a), 5. (d)

Accounts from Incomplete Records

11

LEARNING OBJECTIVES

After studying this chapter, you will be able to :

- *state the meaning and features of incomplete records;*
- *calculate profit or loss using the statement of affairs method;*
- *distinguish between balance sheet and statement of affairs;*
- *prepare trading and profit and loss account and balance sheet from incomplete records; and*
- *detect the missing figures/information by preparing relevant accounts.*

We have so far studied accounting records of firms, which follow the double entry system of book keeping. This gives us an impression that all business units follow this system. However, in practice, all firms do not maintain accounting records strictly as per the double entry system. Many small size enterprises keep incomplete records of their transactions. But, they also have to ascertain the profit or loss for the year and the financial position of the firm as at the end of the year. This chapter deals with the ascertainment of profit or loss and financial position of the firm that have not been maintaining records as per double entry book-keeping or whose records are otherwise incomplete.

11.1 Meaning of Incomplete Records

Accounting records, which are not strictly kept according to double entry system are known as incomplete records. Many authors describe it as single entry system. However, single entry system is a misnomer because there is no such system of maintaining accounting records. It is also not a 'short cut' method as an alternative to double entry system. It is rather a mechanism of maintaining records whereby some transactions are recorded with proper debits and credits while in case of others, either one sided or no entry is made. Normally, under this system records of cash and personal accounts of debtors and creditors are properly maintained, while the information relating to assets, liabilities, expenses and revenues is partially recorded. Hence, these are usually referred as incomplete records.

11.1.1 Features of Incomplete Records

In complete records may be due to partial recording of transactions as is the case with small shopkeepers such as grocers and vendors. In case of large sized organisations, the accounting records may be rendered to the state of incompleteness due to natural calamity, theft or fire. The features of incomplete records are as under :

(a) It is an unsystematic method of recording transactions.
(b) Generally, records for cash transactions and personal accounts are properly maintained and there is no information regarding revenue and/or gains, expenses and/or losses, assets and liabilities.
(c) Personal transactions of owners may also be recorded in the cash book.
(d) Different organisations maintain records according to their convenience and needs, and their accounts are not comparable due to lack of uniformity.
(e) To ascertain profit or loss or for obtaining any other information, necessary figures can be collected only from the original vouchers such as sales invoice or purchase invoice, etc. Thus, dependence on original vouchers is inevitable.
(f) The profit or loss for the year cannot be ascertained under this system with high degree of accuracy as only an estimate of the profit earned or loss incurred can be made. The balance sheet also may not reflect the complete and true position of assets and liabilities.

11.2 Reasons of Incompleteness and its Limitations

It is observed, that many businessmen keep incomplete records because of the following reasons :

(a) This system can be adopted by people who do not have the proper knowledge of accounting principles;
(b) It is an inexpensive mode of maintaining records. Cost involved is low as specialised accountants are not appointed by the organisations;
(c) Time consumed in maintaining records is less as only a few books are maintained;
(d) It is a convenient mode of maintaining records as the owner may record only important transactions according to the need of the business.

However, the mechanism of incomplete records suffers from a number of limitations. This is due to the basic nature of this mechanism. Broadly speaking, unless a systematic approach to maintenance of records is followed, reliable financial statements cannot be prepared.

The limitations of incomplete records are as follows :

(a) As double entry system is not followed, a trial balance cannot be prepared and accuracy of accounts cannot be ensured.
(b) Correct ascertainment and evaluation of financial result of business operations can not be made.
(c) Analysis of profitability, liquidity and solvency of the business cannot be done. This may cause a problem in raising funds from outsiders and planning future business activities.
(d) The owners face great difficulty in filing an insurance claim with an insurance company in case of loss of inventory by fire or theft.
(e) It becomes difficult to convince the income tax authorities about the reliability of the computed income.

11.3 Ascertainment of Profit and Loss

Every business firm wishes to ascertain the results of its operations to assess its efficiency and success and failures. This gives rise to the need for preparing the financial statements to disclose:

(a) the profit made or loss sustained by the firm during a given period; and
(b) the amount of assets and liabilities as at the closing date of the accounting period.

Therefore, the problem faced in this situation is how to use the available information in the incomplete records to ascertain the profit or loss for the particular accounting year and to determine the financial position of a entity as at the end of the year. This can be done in two ways :

1. Preparing the Statement of Affairs as at the beginning and as at the end of the accounting period, called statement of affairs or net worth method.
2. Preparing Trading and Profit and Loss Account and the Balance Sheet by putting the accounting records in proper order, called conversion method.

11.3.1 Preparing Statement of Affairs

Under this method, statements of assets and liabilities as at the beginning and at the end of the relevant accounting period are prepared to ascertain the amount of change in the capital during the period. Such a statement is known as statement of affairs, shows assets on one side and the liabilities on the other just as in case of a balance sheet. The difference between the totals of the two sides (balancing figure) is the capital (refer figure 11.1). Though statement of affairs resembles balance sheet, it is not called a balance sheet because the data is not wholly based on ledger balances. The amounts of items like fixed assets, outstanding expenses, bank balances, etc. are ascertained from the relevant documents and physical count.

Statement of Affairs as at —

Liabilities	*Amount Rs.*	*Assets*	*Amount Rs.*
Bills payable	˝˝˝˝	Land and Building	˝˝˝˝
Creditors	˝˝˝˝	Machinery	˝˝˝˝
Outstanding expenses	˝˝˝˝	Furniture	˝˝˝˝
Capital (balancing figure)*	˝˝˝˝	Stock	˝˝˝˝
		Debtors	˝˝˝˝
		Cash and Bank	˝˝˝˝
		Prepaid expenses	˝˝˝˝
		Capital (balancing figure)*	˝˝˝˝
	xxx x		xxxx

*Note: * where the total of liabilities side is more than total of assets side, capital would be shown in assets side and it represents debit balance of capital.*

Fig. 11.1 : *Format of statement of affairs*

Once the amount of capital, both at the beginning and at the end is computed with the help of statement of affairs, a *statement of profit and loss* is prepared to ascertain the exact amount of profit or loss made during the year. The difference between the opening and closing capital represents its increase or decrease which is to be adjusted for withdrawals made by the owner or any fresh capital introduced by him during the accounting period in order to arrive at the amount of profit or loss made during the period. The statement of profit and loss is prepared as shown in figure 11.2.

Statement of Profit or Loss for the year ended .....

	Particulars	*Amount Rs.*
	Capital as at the end of year (computed from statement of affairs as at the end of year)	.....
Add	Drawings during the year	.....
Less	Additional capital introduced during the year	(.....)
	Adjusted capital at the end of year	.....
Less	Capital as at the beginning of year (computed from statement of affairs as at the beginning of year)	(.....)
	Profit or Loss made during the year	.....

Fig. 11.2 : *Format of statement of profit or loss*

If the net result of above computation is a positive amount, it represents the profit earned during the year. In case the net result is a negative amount, it would represent the loss sustained during the year. The same computation can be done in the form of an equation as follows :

Profit or Loss = Capital at end – Capital at beginning + Drawings during the year – Capital introduced during the year.

For example, consider the following information extracted from the records of Ms. Sheetu :

	Rs.
Capital at the beginning of year, i.e. April 01,2004	1,20,000
Capital at the end of year, i.e. on March 31,2005	2,00,000
Capital brought in by the proprietor during the year	50,000
Withdrawals by the proprietor during the year	30,000

The profit for the year will be calculated as follows :

The profit earned or loss incurred during a given period will be computed as follows :

	Particulars	*Amount Rs.*
	Capital as on March 31, 2005	2,00,000
Add	Drawings during the year	30,000
		2,30,000
Less	Additional capital introduced during the year	(50,000)
	Adjusted capital at the end, i.e. March 31, 2005	1,80,000
Less	Capital in the beginning, i.e. April 01, 2004	(1,20,000)
	Profit made during the year	60,000

Illustration 1

Mr. Mehta started his readymade garments business on April 1, 2004 with a capital of Rs. 50,000. He did not maintain his books according to double entry system. During the year he introduced fresh capital of Rs. 15,000. He withdrew Rs. 10,000 for personal use. On March 31, 2005, his assets and liabilities were as follows :

Total creditors Rs. 90,000 ; Total debtors Rs. 1,25,600 ; Stock Rs. 24,750 ; Cash at bank Rs. 24,980.

Calculate profit or loss made by Mr. Mehta during the first year of his business using the statement of affairs method.

Solution

Books of Mr. Mehta
Statement of Affairs as on March 31, 2005

Liabilities	*Amount Rs.*	*Assets*	*Amount Rs.*
Creditors	90,000	Cash at bank	24,980
Capital	85,330	Debtors	1,25,600
(balancing figure)		Stock	24,750
	1,75,330		1,75,330

Statement of Profit or Loss for the year ended March 31,2005

	Particulars	*Amount Rs.*
	Capital as March 31, 2005	85,330
Add	Drawings during the year	10,000
		95,330
Less	Additional capital introduced during the year	(15,000)
	Adjusted capital at end of the year, i.e. March 31,2005	80,330
Less	Actual capital at the beginning of year, i.e. April 01, 2004	(50,000)
	Profit made during the year	30,330

Illustration 2

Mrs. Vandana runs a small printing firm. She was maintaining only some records, which she thought, were sufficient to run the business. On April 01, 2004, available information from her records indicated that she had the following assets and liabilities: Printing Press Rs. 5,00,000, Buildings Rs. 2,00,000, Stock Rs. 50,000, Cash at bank Rs. 65,600, Cash in hand Rs. 7,980, Dues from customers Rs. 20,350, Dues to creditors Rs. 75,340 and Outstanding wages Rs. 5,000. She withdrew Rs. 8,000 every month for meeting her personal expenses. She had also introduced Rs. 15,000 during the year as additional capital. On March 31, 2005 her position was as follows :

Press Rs. 5, 25,000, Buildings Rs. 2,00,000, Stock Rs. 55,000, Cash at bank Rs. 40,380, Cash in hand Rs. 15,340, Dues from customers Rs. 17,210, Dues to creditors Rs. 65,680.

Calculate the profit made by Mrs. Vandana during the year using statement of affairs method.

Solution

Books of Mrs. Vandana
Statement of Affairs as on April 1, 2004
and as on March 31,2005

Liabilities	*Apr. 01, 04 Rs.*	*Amount Rs.*	*Assets*	*Apr. 01, 04 Rs.*	*Amount Rs.*
Creditors	75,340	65,680	Printing press	5,00,000	5,25,000
Wages outstanding	5,000	–	Buildings	2,00,000	2,00,000
Capital	7,63,590	7,87,250	Debtors	20,350	17,210
(balancing figure)			Stock	50,000	55,000
			Cash at bank	65,600	40,380
			Cash in hand	7,980	15,340
	8,43,930	8,52,930		8,43,930	8,52,930

Statement of Profit or Loss for the year ended on March 31, 2005

	Particulars	*Amount Rs.*
	Capital as on March 31,2005	7,87,250
Add	Drawings during the year	96,000
		8,83,250
Less	Additional capital introduced during the year	(15,000)
	Adjusted capital at the end of the year (31.3.2005)	8,68,250
Less	Capital as on April 01, 2004	(7,63,590)
	Profit made during the year	1,04,660

11.3.2 Difference between Statement of Affairs and Balance Sheet

Both statement of affairs and balance sheet show the assets and liabilities of a business entity on a particular date. However, there are some fundamental differences between the two. A statement of affairs is prepared from incomplete records where most of the assets are recorded on the basis of estimates as compared to a balance sheet which is prepared from records maintained on the basis of double entry book-keeping and all assets and liabilities can be verified from the ledger accounts. Hence, a balance sheet is more reliable than a statement of affairs. The objective of preparing a statement of affairs is to ascertain the amount of capital account as on that date whereas a balance sheet is prepared to know the financial position of the business at a particular date. In statement of affairs, an item of assets or liabilities may get omitted and this omission may remain unknown because the effect of this omission gets adjusted in the capital account balance and the total of both sides of statement match. However, in case of a balance sheet the possibility of omission of any item is remote because in case of an omission, the balance sheet will not agree and the accountant will trace the missing item from accounting records. These differences have been shown in a tabular form as under :

Basis of difference	*Statement of affairs*	*Balance sheet*
Reliability	It is less reliable as it is prepared from incomplete records.	It is more reliable as it is prepared from double entry records.
Objective	The objective of preparing statement of affairs is to estimate the balance in capital account on a particular date.	The objective of preparing balance sheet is to show the true financial position of an entity on a particular date.
Omission	Omission of assets or liabilities cannot be discovered easily.	Omissions of assets or liabilities can be discovered easily and can be traced from accounting records.

Fig. 11.3 : *Showing comparison between statement of affairs and balance sheet*

Do It Yourself

Identify a small shopkeeper in your locality, ask him about the accounting records maintained by him. If he is not maintaining the records as per double entry system, list the reasons thereof and ask him how does he compute profit or loss.

11.4 Preparing Trading and Profit and Loss Account and the Balance Sheet

To prepare proper trading and profit and loss account and the balance sheet one needs complete information regarding expenses, incomes, assets and liabilities. In case of incomplete records, details of some items like creditors, cash purchases, debtors, cash sales, other cash payments and such receipts are easily available, but there are a number of items the details of which will have to be ascertained in an indirect manner by using the logic of double entry. The most common items that are missing and have to be worked out as such are :

- Opening capital
- Credit purchases
- Credit sales
- Bills payable accepted
- Bills receivable received
- Payments to creditors
- Payments to debtors
- Any other cash/bank related items.

You know that opening capital can be worked out by preparing the statement of affairs at the beginning of the year. For other items we have explained as to how available information can be used to ascertain their missing figures with the help of total debtors and total creditors, total bills receivable and total bills payable accounts and summary of cash.

11.4.1 Ascertaining Credit Purchases

The credit purchases figure is not usually available from the incomplete records. It is quite possible that some other information related to creditors may also be missing. Therefore, by preparing the total creditors account, a proforma of which is given in figure 11.4, credit purchases or any other missing figure related to creditors, as the case may be, can be ascertained as the balancing figure.

Total Creditors Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Cash paid		....		Balance b/d		....
	Bank		....		Bank (cheques		....
	(cheques issued)				dishonoured)		
	Bills payable		....		Bills payable		....
	(bills accepted)				(bills dishonoured)		
	Discount received		....		Credit purchases		....
	Purchases return		....				
	Balance c/d		....				
			xxxxxxx				xxxxxxx

Fig. 11.4 : *Showing format of creditors account*

For example, consider the following transactions relating to M/s Kisan Food Suppliers:

	Rs.
Opening balance of creditors	40,000
Closing balance of creditors	50,000
Payment made in cash	85,000
Discount received	2,000

The total creditors account will be prepared as follows :

Books of Kisan
Food Suppliers
Total Creditors Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Cash		85,000		Balance b/d		40,000
	Discount		2,000		Credit purchases		97,000
					(balancing figure)		
	Balance c/d		50,000				
			1,37,000				1,37,000

11.4.2 Ascertainment of Credit Sales

The figure of credit sales is also not usually available from incomplete records. Some other information on related to debtors may also be missing. Therefore, if the total debtors account is prepared as shown in figure 11.5, credit sales or any other missing figure, as the case may be, can be traced out as the balancing figure.

Total Debtors Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Balance b/d		....		Cash		....
					(cash received)		
					Bank (cheque received)		
	Bills receivable (bills dishonoured)		....		Discount allowed		....
	Bank (cheque dishonoured)		....		Bad debts		....
	Credit sales (balancing figure)		....		Sales return		....
					Bills receivable (bills received)		....
					Balance c/d		....
			xxx				xxx

Fig. 11.5 : *Showing format of debtors account*

From the credit sales as ascertained from total debtors account, the sales returns should be deducted from gross credit sales to get net credit sales. For example, the following information is obtained from the books of Mohanlal Traders :

	Rs.
Debtors on April 01, 2005	50,000
Debtors on March 31, 2005	70,000
Cash received from debtors	60,000
Discount allowed	1,000
Bills receivable	30,000
Bad debts	3,000

The total debtors account will be prepared as follows :

Mohan Lal Traders
Total Debtors Account

Dr. **Cr**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
2005							
Apr. 01	Balance b/d		50,000		Cash		60,000
	Credit sales		1,14,000		Discount		1,000
	(balancing figure)				Bills receivable		30,000
					Bad debts		3,000
					Balance c/d		70,000
			1,64,000				1,64,000

11.4.3 Ascertainment of Bills Receivable and Bills payable

Quite often, while all details relating to bills receivable and bills payable are available but the figures of the bills received and bills accepted during the year are not given. In such a situation, total bills receivable account and total bills payable account can be prepared and the missing figures ascertained as the balancing figures. The proforma of total bills receivable account and total bills payable account is shown in figure 11.6 and figure 11.7.

Total Bills Receivable Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Balance b/d		....		Bank (bills honoured)		....
	Sundry debtors (bills received)		....		Sundry debtors (bills dishonoured)		....
					Balance c/d		....
			xxx				xxx

Fig. 11.6 : *Showing format of bills receivable account*

Total Bills Payable Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Bank (bills matured)		....		Balance b/d		....
	Sundry creditors (bills dishonoured)		....		Sundry creditors (bills accepted)		....
	Balance c/d		....				
			xxx				xxx

Fig. 11.7 : *Showing format of bills payable account*

For example consider the following data available from the records of M/s S.S. Senapati

	Rs.
Opening bills receivable	5,000
Opening bills payable	37,000
Bills receivable dishonoured	2,000
Bills payable dishonoured	66,750
Closing bills payable	52,000
Bills collected during the year	12,000
Closing bills receivable	4,000

The bills receivable and bills payable will be prepared as follows :

Total Bills Receivable Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F*	*Amount Rs.*
	Balance b/d		5,000		Sundry debtors (bills dishonoured)		2,000
	Sundry debtors (bills received) (balancing figure)		13,000		Bank (bills collected)		12,000
					Balance c/d		4,000
			18,000				18,000

Total Bills Payable Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Bill dishonoured		66,750		Balance b/d		37,500
	Balance c/d		52,500		Sundry Creditors (bills accepted) (balancing figure)		81,750
			1,19,250				1,19,250

Test Your Understanding - I

Tick the correct answer :

1. Incomplete record mechanism of book keeping is :
   (a) Scientific (b) Unscientific
   (c) Unsystematic (d) both (b) and (c)
2. Opening capital is ascertained by preparing :
   (a) Total debtors account (b) Total creditors account
   (c) Cash account (d) Opening statement of affairs
3. Credit purchase, during the year is ascertained by preparing :
   (a) Total creditors account (b) Total debtors account
   (c) Cash account (d) Opening statement of affairs
4. If opening capital is Rs. 60,000, drawings Rs. 5,000, capital introduced during the period Rs. 10,000, closing capital Rs. 90,000. The value of profit earned during the period will be :
   (a) Rs. 20,000 (b) Rs. 25,000
   (c) Rs. 30,000 (d) Rs. 40,000

11.4.4 Ascertainment of Missing Information through Summary of Cash

Sometimes, the amount paid to creditors or the amount received from debtors or the opening or closing cash or bank balance may be missing. To ascertain any missing item of receipt or payment, we may prepare a cash book summary showing all receipts and payments during the year and the balancing figure is taken as the amount of missing item.

If however, both amount paid to creditors and that received from debtors are missing, then any one of these may be obtained first through the total creditors or total debtors account, as the case may be, and the other missing information ascertained from the cash book summary in the same way as stated earlier.

After the missing figures have been traced out, the final accounts may be prepared straight away or after the preparation of the trial balance. The components of the trial balance and their sources of information are summarised below :

1.	Closing assets (except stock) and liabilities	Closing list
2.	Opening assets (including opening stock) and liabilities	Opening list
3.	Purchases	Credit purchases from total creditors account and cash purchases from summary of cash
4.	Sales	Credit sales from total debtors account and cash sales from summary of cash
5.	Opening capital	Opening statement of affairs
6.	Expenses and Revenues	As per cash summary of cash plus subsidiary informatioon
7.	Losses and Gains	From all the accounts and scattered information
8.	Bills receivable received	Total bills receivable account
9.	Bills payable accepted	Total bills payable account
10.	Cash/Bank balance	Summary of cash

Fig. 11.7 : *Detecting the missing information*

Illustration 3

Compute the amount of total purchases and total sales of Mr. Amit from the following information for the year ending on March 31,2005.

	Amount *Rs.*
Total debtors as on April 01, 2004	40,000
Total creditors as on April 01, 2004	50,000
Bills receivable as on April 01, 2004	30,000
Bills payable as on April 01, 2004	45,000
Discount received	5,000
Bad debts	2,000
Return inwards	4,000
Discount allowed	3,000

Cash sales	10,000
Cash purchases	8,000
Total debtors as on March 31, 2005	80,000
Cash received from debtors	1,00,000
Cash paid to creditors	80,000
Cash received against bills receivable	25,000
Payment made against bills receivable	40,000
Total creditors as on March 31, 2005	40,000
Bills payable as on March 31, 2005	50,000
Bills receivable as on March 31, 2005	35,000

Solution

Total Bills Receivable Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Balance b/d		30,000		Cash		25,000
	Total debtors (balancing figure)		30,000		Balance c/d		35,000
			60,000				60,000

Total Bills Payable Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Cash		40,000		Balance b/d		45,000
	Balance c/d		50,000		Total creditors (balancing figure)		45,000
			90,000				90,000

Total Debtors Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Balance b/d		40,000		Bad debts		2,000
	Sales (balancing figure)		1,79,000		Return inwards		4,000
					Discount allowed		3,000
					Cash		1,00,000
					Bills receivable (Transfer from bills receivable account)		30,000
					Balance c/d		80,000
			2,19,000				2,19,000

Total Creditors Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Discount received		5,000		Balance b/d		50,000
	Cash		80,000		Purchases (credit) (balancing figure)		1,20,000[2]
	Bills payable (transfer from bills payable account)		45,000				
	Balance c/d		40,000				
			1,70,000				1,70,000

Working Notes

(i) Credit purchases have been computed from total creditors account as Rs. 1,20,000[2]. Cash purchases given are Rs. 8,000. Total purchases will be Rs. 1,20,000 + Rs. 8,000 = Rs. 1,28,000.

(ii) Credit sales have been computed from total debtors account as Rs. 1,79,000 and cash sales are given as Rs. 10,000. Total sales will be Rs. 1,79,000 + Rs. 10,000 = Rs. 1,89,000.

Illustration 4

From the following information supplied by Ms. Sudha, calculate the amount of 'Net Sales'

	Rs.
Debtors on April 01, 2005	65,000
Debtors on March 31, 2006	50,000
Opening balance of bills receivable as on April 01, 2005	23,000
Closing balance of bills receivable as on March 03, 2006	29,000
Cash received from debtors	3,02,000
Discount allowed	8,000
Cash received against bills receivable	21,000
Bad debts	14,000
Bill receivalbes (dishonoured)	20,000
Cash sales	2,25,000
Sales return	17,000

Total Bills Receivable Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Opening balance		23,000		Cash (bills honoured)		21,000
	Debtors (Bills receivable) (balancing figure)		47,000		Bills receivable dishonoured		20,000
					Closing balance		29,000
			70,000				70,000

Total Debtors Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
2005				2005			
Apr. 01	Opening balance		65,000	Apr. 01	Cash received		3,02,000
	Bills receivable (dishonoured)		20,000		Discount allowed		8,000
	Sales (balancing figure)		3,53,000		Sales return		17,000
					Bad debts		14,000
					Bills receivable (transferred from bills receivable account)		47,000
					Closing balance		50,000
			4,38,000				4,38,000

(*Working Notes*)

With the preparation of total debtors account and total bills receivable account, the net sales will be computed as follows :

Net Sales = Cash Sales + Credit Sales – Sales return
= Rs. 2,25,000 + Rs. 3,53,000 – Rs. 1,7000
= Rs. 5,61,000

Illustration 5

Mr. Om Prakash did not keep his books of accounts under double entry system. From the following information available from his records, prepare profit and loss account for the year ending on March 31, 2005 and a balance sheet as at that date, depreciating the washing equipment @ 10%.

Summary of Cash

Dr. **Cr.**

Receipts	*Amount Rs.*	*Payments*	*Amount Rs.*
Balance b/d	8,000	Cash purchases	14,000
Cash sales	40,000	Paid to creditors	20,000
Received from debtors	30,000	Sundry expenses	6,000
		Cartage	2,000
		Drawings	8,000
		Balance c/d	28,000
	78,000		78,000

Other information :

March 31, 2004

	March 31, 2004 Rs.	*March 31, 2005* Rs.
Debtors	9,000	12,000
Creditors	14,400	6,800
Stock of materials	10,000	16,000
Washing equipment	40,000	40,000
Furniture	3,000	3,000
Discount allowed during the year		1,400
Discount received during the year		1,700

Solution

Books of Om Prakash
Trading and Profit and Loss Account
for the year ended on March 31, 2005

Expenses/losses	*Amount* Rs.	*Revenues/gains*	*Amount* Rs.
Opening stock	10,000	Sales	74,400
Purchases	28,100	Closing stock	16,000
Cartage	2,000		
Gross profit c/d	50,300		
	90,400		90,400
Sundry expenses	6,000	Gross profit b/d	50,300
Discount allowed	1,400	Discount received	1,700
Depreciation	4,000		
Net profit (transfered to capital account)	40,600		
	52,000		52,000

Balance Sheet as at March 31, 2005

Liabilities		*Amount* Rs.	*Assets*		*Amount* Rs.
Capital	55,600		Washing equipment	40,000	
Add Profit	40,600		*Less* Depreciation	(4,000)	36,000
	96,200				
Less Drawings	(8,000)	88,200	Furniture		3,000
Creditors		6,800	Stock of materials		16,000
			Debtors		12,000
			Cash		28,000
		95,000			95,000

Working Notes :

Total Debtors Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Balance b/d		9,000		Cash		30,000
	Sales (credit) (balancing figure)		34,400		Discount allowed		1,400
					Balance c/d		12,000
			43,400				43,400

Total Creditors Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Cash		20,000		Balance b/d		14,400
	Discount received		1,700		Purchases (credit) (balancing figure)		14,100
	Balance c/d		6,800				
			28,500				28,500

Statement of Affairs as at March 31,2004

Liabilities	*Amount Rs.*		*Assets*	*Amount Rs.*
Creditors	14,400		Washing equipment	40,000
Capital	55,600		Furniture	3,000
(balancing figure)			Stock of material	10,000
			Debtors	9,000
			Cash	8,000
	70,000			70,000

Illustration 6

Mrs. Surabhi started business on Jan 01, 2005 with cash of Rs. 50,000, furniture of Rs. 10,000, goods of 2,000 and machinery worth 20,000. During the year she further introduced Rs. 20,000 in her business by opening a bank account. From the following information extracted from her books, you are required to prepare final accounts for the ended December 31, 2005.

	Rs.
Receipt from debtors	57,500
Cash sales	45,000
Cash purchases	25,000
Wages paid	5,000
Salaries to staff	17,500
Trade expanses	6,500
Electricity bill of factory	7,500
Drawings of Surabhi	3,000
Cash paid to creditors	42,000
Discount allowed	1,200
Discount received	3,000
Bad debts written-off	1,300
Cash balance at end of year	20,000

Mrs. Surabhi used goods worth 2,500 for private purposes, which is not recorded in the books. Charge depreciation on furniture 10% and machinery 20% p.a. on Dec. 31, 2005 her debtors were worth 70,000 and creditors Rs. 35,000, stock in trade was valued on that date at Rs. 25,000.

Solution

Books of Mrs. Surabhi
Trading and Profit and Loss Account
for the year ended December 31, 2005

Expenses/Losses		*Amount Rs.*	*Revenues/Gains*		*Amount Rs.*
Opening stock		20,000	Sales	45,000	
Purchases :					
Cash :	25,000		Credit	1,30,000	1,75,000
Credit :	80,000[2]		Closing stock		25,000
	1,05,000				
Less Goods used for private use	(2,500)	1,02,500			
Wages		5,000			
Electricity bill of factory		7,500			
Gross profit c/d		65,000			
		2,00,000			2,00,000
Salaries		17,500	Gross profit b/d		65,000
Trade expenses		6,500	Discount received		3,000
Discount allowed		1,200			
Bad debts		1,300			
Depreciation					
Furniture	1,000				
Machinery	4,000	5,000			
Net profit (transferred to capital account)		36,500			
		68,000			68,000

Balance Sheet of Mrs. Surabhi as at December 31, 2005

Liabilities		*Amount Rs.*	*Assets*		*Amount Rs.*
Creditors		35,000	Cash		20,000
			Bank		13,000
Capital	1,00,000		Stock		25,000
Add Net profit	36,500		Debtors		70,000
	1,36,000		Furniture	10,000	
Add Additional capital	20,000		*Less* Depreciation	(1,000)	9,000
	1,56,500		Machinery	20,000	
			Less Depreciation	(4,000)	16,000
Less Drawings					
Cash 36,000					
Goods 2,500	(38,500)	1,18,000			
		1,53,000			1,53,000

Working Notes :

(i) Total Debtors Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Balance b/d		NIL		Cash		57,500
	Sales (credit) (balancing figure)		1,30,000		Discount allowed		1,200
					Bad debts		1,300
					Balance c/d		70,000
			1,30,000				1,30,000

(ii) Total Creditors Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Cash		42,000		Balance b/d		NIL
	Discount received		3,000		Purchase credit (balancing figure)		80,000
	Balance c/d		35,000				
			80,000				80,000

(iii) Statement of Affair as on Jan. 01, 2005

Liabilities	*Amount Rs.*	*Assets*	*Amounts Rs.*
		Cash	50,000
Capital (balancing figure)	1,00,000[3]	Stock	20,000
		Furniture	10,000
		Machinery	20,000
	1,00,000		1,00,000

(iv) Summary of Cash

Dr. **Cr.**

Receipts	*Amount Rs.*	*Payments*	*Amount Rs.*
Balance b/d	50,000	Purchases	25,000
Capital(bank)	20,000	Wages	5,000
Debtors	57,500	Salaries	17,500
Sales	45,000	Trade expenses	6,500
		Electric bill	7,500
		Drawings	36,000
		Creditors	42,000
		Balance c/d—cash	20,000
		Closing bank(balancing figure)	13,000
	1,72,500		1,72,500

Test Your Understanding - II

Write the correct word(s) :

1. Credit sales can be ascertained as the balancing figure in the.....account.
2. Excess of .....over.....represents loss sustained during the period.
3. To ascertain the profit, closing capital is to be adjusted by deducting .....and adding .....
4. Incomplete records are generally used by .....

Illustration 7

Mr. Bahadur does not know how to keep books of account. From his various records, the following particulars have been made available prepare the final Accounts, after providing for doubtful debts 5 per cent of debtors outstanding and depreciating the motor car @ 20 per cent.

(i) Balance Sheet as on April 1, 2005

Liabilities	*Amount Rs.*	*Assets*	*Amount Rs.*
Capital	92,500	Motor Car	71,700
Bills payable	32,800	Stock	51,500
Creditors	84,200	Debtors	49,500
		Bills receivable	24,400
		Cash in hand	12,400
	2,09,500		2,09,500

(ii) Cash Transactions during the year

Particular	*Amount Rs.*	*Particular*	*Amount Rs.*
Balance b/d	12,400	Furniture	30,000
Receipt from debtors	1,15,000	Wages	9,400
Bills receivable	14,200	Purchases	40,500
Sales	1,03,000	Drawings	24,000
		Bills payable	30,700
		General expenses	20,700
		Payment to creditors	80,800
		Balance c/d	8,500
	2,44,600		2,44,600

(iii) Other Information

Particulars	*Amount Rs.*
Bills receivable drawn (received)	6,300
Discount to customers	2,300
Discount from suppliers	700
Credit purchases	29,600
Closing stock	41,700
Closing balance of debtor	55,000
Closing balance of bills payable	10,200

Solution

Cash sales and cash purchases are available from cash transactions. Credit purchase is also given. But credit sale is to be ascertained by the opening debtors account. Though the credit purchase is available, the closing balance of creditors is not known. That is why the creditors account also has to be opened. As there are bills payable and bills receivable, those accounts also have to be opened, otherwise the creditors and debtors accounts will not be complete.

Books of Mr. Bahadur
Trading and Profit and Loss Account
for the year ended March 31, 2006

Expenses/Losses		*Amount Rs.*	*Revenues/Gains*		*Amount Rs.*
Opening stock		51,500	Sales		
purchases					
Cash	40,500		Cash	1,03,000	
Credit	29,600	70,100	Credit	1,29,100	2,32,100
Wages		9,400	Closing stock		41,700
Gross profit c/d		1,42,800			
		2,73,800			2,73,800
General expenses		20,700	Gross profit b/d		1,42,800
Discount allowed		2,300	Discount received		700
Depreciation on motor car		14,340			
Reserve for bad debts		2,750			
Net profit		1,03,410			
		1,43,500			1,43,500

Balance Sheet as March 31, 2006

Liabilities		*Amount Rs.*	*Assets*		*Amount Rs.*
Capital	92,500		Motor car	71,700	
Add Net profit	1,03,410		*Less* depreciation	(14,340)	57,360
	1,95,910		Furniture		30,000
Less Drawings	(24,000)	1,71,910	Stock		41,700
Creditors		24,200	Debtors	55,000	
Bills payable		10,200	*Less* Provision	(2,750)	52,250
			Bills receivable		16,500
			Cash		8,500
		2,06,310			2,06,310

Working Notes:

(i) Total Bills Receivable Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Balance b/d		24,400		Cash (receipt)		14,200
	Debtors		6,300		Balance c/d		16,500
	(bills drawn)				(balancing figure)		
			30,700				30,700

(ii) Total Debtors Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Balance b/d		49,500		Cash (receipt)		1,15,000
	Credit sales (balancing figure)		1,29,100		Bills (drawn)		6,300
					Discount allowed		2,300
					Balance c/d		55,000
			1,78,600				1,78,600

(iii) Total Bills payable Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Cash (paid)		30,700		Balance b/d		32,800
	Balance c/d		10,200		Creditors (bills accepted) (balancing figure)		8,100
			40,900				40,900

(iv) Total Creditors Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Cash		80,800		Balance b/d		84,200
	Bills payable		8,100		Credit purchases		29,600
	Discount received		700				
	Balance c/d (balancing figure)		24,200				
			1,13,800				1,13,800

Illustration 8

Dinesh does not keep systematic books of account due to lack of Knowledge about the double entry system of accounting. He supplies you the following information :

(i) Assets and Liabilities
December 31, 2006

	Rs.	Rs.
Sundry debtors	45,000	48,600
Sundry creditors	24,000	?
Cash	4,500	?

Furniture and Fixtures	15,000	?
Stock	25,000	?
Motor Van	16,000	?

(ii) Transaction during the year

	Rs.
Cash received from debtors	80,000
Discount allowed to debtors	1,400
Bad debts written off	1,800
Cash paid to creditors	63,000
Discount allowed by creditors	1,000
Sales return	3,000
Purchases return	2,000
Expenses paid	6,000
Drawings	5,000
Rent paid	2,500

(iii) Other Information

Outstanding expenses Rs. 1,200. Charge 10 per cent depreciation on furniture and 5 per cent on motor van.Dinesh informs that he sells goods at cost plus 40 per cent. A provision of 5 per cent on debtors is to be created. Prepare his trading and profit and loss account and balance sheet as on December 31, 2006

Books of Dinesh
Trading and Profit and Loss Account
for the year ending December 31, 2006

Dr. **Cr.**

Expenses/Losses		*Amount Rs.*	*Revenues/Gains*		*Amount Rs.*
Opening stock		25,000	Sales	89,800	
Purchases	69,000		*Less* Returns	(3,000)	86,800
Less Returns	(2,000)	67,000	Closing stock		30,000
Gross profit c/d		24,800			
		1,16,800			1,16,800
Discount allowed		1,400	Gross profit b/d		24,800
Bad debts		1,800	Discount received		1,000
Expenses paid	6,000				
Add Outstanding expenses	1,200	7,200			
Rent paid		2,500			
Depreciation on Furniture	1,500				
Motor van	800	2,300			
Provision for bad debts		2,430			
Net profit (transferred to capital account)		8,170			
		25,800			25,800

Balance Sheet as on December 31, 2006

Liabilities		*Amount Rs.*	*Assets*		*Amount Rs.*
Outstanding expenses		1,200	Cash		8,000
Creditors		27,000	Debtors	48,600	
Capital	81,500		*Less* Provision	(2,430)	46,170
Less Drawings	(5,000)		Closing stock		30,000
	76,500		Furniture & Fixtures	15,000	
Add Net profit	8,170	84,670	*Less* Depreciation	(1,500)	13,500
			Motor van	16,000	
			Less Depreciation	(800)	15,200
		1,12,870			1,12,870

Working Notes :

(i) Total Debtors Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Balance b/d		45,000		Cash received		80,000
	Sales		89,800		Discount allowed		1,400
					Bad debts		1,800
					Sales return		3,000
					Balance c/d		48,600
			1,34,800				1,34,800

(ii) Total Creditors Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Cash paid		63,000		Balance b/d		24,000
	Discount received		1,000		Purchases		69,000
	Purchases return		2,000				
	Balance c/d		27,000				
			93,000				93,000

(iii) Summary of Cash

Dr. **Cr.**

Receipts	*Amount Rs.*	*Payments*	*Amount Rs.*
Balance b/d	4,500	Creditors	63,000
Debtors	80,000	Expenses paid	6,000
		Drawings	5,000
		Rent paid	2,500
		Balance c/d	8,000
	84,500		84,500

(iv) Statement of Affairs as on December 31, 2005

Liabilities	*Amount Rs.*	*Assets*	*Amount Rs.*
Creditors	24,000	Debtors	45,000
		Cash	4,500
		Stock	25,000
Capital in the beginning (Balancing figure)	81,500	Furniture and Fixtures	15,000
		Motor Van	16,000
	1,05,500		1,05,500

(v) Calculation of Closing Stock

	Rs.
Total sales	89,800
Less Sales return	(3,000)
Net sales	86,800
Total purchases	69,000
Less Purchases returens	(2,000)
	(67,000)
Rate of gross profit on cost	40%
Suppose cost of goods sold is	100
Then, Gross profit equals to	40
Sales equals to	140

Hence, Cost of goods sold will be

$$\text{Sale} = \text{Rs. } 86,800 = \frac{100}{140} \times 86,800 = 62,000$$

The amount of closing stock will be calculated as :	
Net Purchases	67,000
Add Closing stock	25,000
Cost of goods available for sale	92,000
Less Cost of goods sold	(62,000)
Closing stock	30,000

Key Terms Introduced in the Chapter

- Incomplete records
- Statement of affairs

Summary with Reference to Learning Objectives

1. *Incomplete records* : Incomplete records refer to, lack of accounting records according to the double entry system. Degree of incompleteness may vary from highly disorganised records to organised, but still not complete.
2. *Difference between statement of affairs and balance sheet* : A statement of affairs is a statement showing various assets and liabilities of a firm on date, with

difference between the two sides denoting capital. Since, the records are incomplete, the values of assets and liabilities are normally estimates based on information available. They are not the balances taken from properly maintained ledger like in case of balance sheet. The balance sheet is derived from a set of books maintained on the basis of double entry system.

3. *Computation of profit and loss from incomplete records* : The statement of affairs is used to compute capital when a firm has a highly disorganised set of incomplete records. To the difference between the closing and opening capital, any sum withdrawn from business are added back and any additional capital introduced during the year are deducted to find out profit and loss made for the period.
4. *Preparation of profit and loss account and balance sheet* : When cash summary of a firm is available along with information about personal accounts of creditors and customers, an attempt can be made to prepare the profit and loss account and balance sheet. Missing figures about purchases, sales, debtors and creditors can be obtained by preparing proforma accounts of debtors, creditors, bills receivable and bills payable using the logic of double entry system. Once a profit and loss account and balance sheet are prepared, it will be possible for the firm to start a complete accounting system for future.

Questions for Practice

Short Answers

1. State the meaning of incomplete records?
2. What are the possible reasons for keeping incomplete records?
3. Distinguish between statement of affairs and balance sheet.
4. What practical difficulties are encountered by a trader due to incompleteness of accounting records?

Long Answers

1. What is meant by a 'statement of affairs'? How can the profit or loss of a trader be ascertained with the help of a statement of affairs?
2. 'Is it possible to prepare the profit and loss account and the balance sheet from the incomplete book of accounts kept by a trader'? Do you agree? Explain.
3. Explain how the following may be ascertained from incomplete records:
   (a) Opening capital and closing capital
   (b) Credit sales and credit purchases
   (c) Payments to creditors and collection from debtors
   (d) Closing balance of cash.

Numerical Questions

Ascertainment of profit or loss by statement of affairs method

1. Following information is given below prepare the statement of profit or loss:

	Rs.
Capital at the end of the year	5,00,000
Capital in the beginning of the year	7,50,000

Drawings made during the period	3,75,000
Additional Capital introduced	50,000

[*Ans* : Profit : Rs. 75,000].

2. Manveer started his business on January 01, 2005 with a capital of Rs. 4,50,000. On December 31, 2005 his position was as under:

	Rs.
Cash	99,000
Bills receivable	75,000
Plant	48,000
Land and Building	1,80,000
Furniture	50,000

He owned Rs. 45,000 from his friend Susheel on that date. He withdrew Rs. 8,000 per month for his household purposes. Ascertain his profit or loss for this year ended December 31, 2005
[*Ans* : Profit : Rs.53,000].

3. From the information given below ascertain the profit for the year :

	Rs.
Capital at the beginning of the year	70,000
Additional capital introduced during the year	17,500
Stock	59,500
Sundry debtors	25,900
Business premises	8,600
Machinery	2,100
Sundry creditors	33,400
Drawings made during the year	26,400

[*Ans* : Profit : Rs.1,600].

4. From the following information, Calculate Capital at the beginning :

	Rs.
Capital at the end of the year	4,00,000
Drawings made during the year	60,000
Fresh Capital introduce during the year	1,00,000
Profit of the current year	80,000

[*Ans* : Capital at thé beginning of the year : Rs.2,60,000].

5. Following information is given below : calculate the closing capital

	Jan. 01, 2005	Dec. 31, 2005
	Rs.	Rs.
Creditors	5,000	30,000
Bills payable	10,000	—
Loan	—	50,000
Bills receivable	30,000	50,000
Stock	5,000	30,000
Cash	2,000	20,000

[*Ans* : Closing capital : Rs.20,000].

Calculation of profit or loss and ascertainment of statement of affairs at the end of the year (Opening Balance is given)

6. Mrs. Anu started firm with a capital of Rs. 4,00,000 on 1st July 2005. She borrowed from her friends a sum of Rs. 1,00,000 @ 10% per annum (interest

paid) for business and brought a further amount to capital Rs. 75,000 on Dec. 31, 2005, her position was :

	Rs.
Cash	30,000
Stock	4,70,000
Debtors	3,50,000
Creditors	3,00,000

He withdrew Rs. 8,000 per month for the year. Calculate profit or loss for the year and show your working clearly.

[*Ans* : Profit : Rs.23,000].

7. Mr. Arnav does not keep proper records of his business he provided following information, you are required to prepare a statement showing the profit or loss for the year.

	Rs.
Capital at the beginning of the year	15,00,000
Bills receivable	60,000
Cash in hand	80,000
Furniture	9,00,000
Building	10,00,000
Creditors	6,00,000
Stock in trade	2,00,000
Further capital introduced	3,20,000
Drawings made during the period	80,000

[*Ans* : Loss : Rs. 1,00,000].

Ascertainment of statement of affairs at the beginning and at the end of the year and calculation of profit or loss.

8. Mr. Akshat keeps his books on incomplete records following information is given below :

	April 01, 2004	March 31, 2005
	Rs.	Rs.
Cash in hand	1,000	1,500
Cash at bank	15,000	10,000
Stock	1,00,000	95,000
Debtors	42,500	70,000
Business premises	75,000	1,35,000
Furniture	9,000	7,500
Creditors	66,000	87,000
Bills payable	44,000	58,000

During the year he withdrew Rs. 45,000 and introduced Rs. 25,000 as further capital in the business compute the profit or loss of the business.

[*Ans* : Profit : Rs. 61,500].

9. Gopal does not keep proper books of account. Following information is given below:

	Jan. 01, 2005	Dec. 31, 2005
	Rs.	Rs.
Cash in hand	18,000	12,000
Cash at bank	1,500	2,000

Stock in trade	80,000	90,000
Sundry debtors	36,000	60,000
Sundry creditors	60,000	40,000
Loan	10,000	8,000
Office equipments	25,000	30,000
Land and Buildings	30,000	20,000
Furniture	10,000	10,000

During the year he introduced Rs. 20,000 and withdrew Rs. 12,000 from the business. Prepare the statement of profit or loss on the basis of given information

[*Ans* : Profit : Rs. 53,500].

10. Mr. Muneesh maintains his books of accounts from incomplete records. His books provide the information :

	Jan. 01, 2005 Rs.	Dec. 31, 2005 Rs.
Cash	1,200	1,600
Bills receivable	—	2,400
Debtors	16,800	27,200
Stock	22,400	24,400
Investment	—	8,000
Furniture	7,500	8,000
Creditors	14,000	15,200

He withdrew Rs. 300 per month for personal expenses. He sold his investment of Rs. 16,000 at 2% premium and introduced that amount into business.

[*Ans* : Profit : Rs. 9,780].

11. Mr. Girdhari Lal does not keep full double entry records. His balance as on January 01, 2006 is as.

Liabilities	*Amount Rs.*	*Assets*	*Amount Rs.*
Sundry creditors	35,000	Cash in hand	5,000
Bills payable	15,000	Cash at bank	20,000
Capital	40,000	Sundry debtors	18,000
		Stock	22,000
		Furniture	8,000
		Plant	17,000
	90,000		90,000

His position at the end of the year is :

	Rs.
Cash in hand	7,000
Stock	8,600
Debtors	23,800
Furniture	15,000

Plant	20,350
Bills payable	20,200
Creditors	15,000

He withdrew Rs. 500 per month out of which to spent Rs. 1,500 for business purpose. Prepare the statement of profit or loss.
[*Ans* : Profit : Rs. 4,050].

12. Mr. Ashok does not keep his books properly. Following information is available from his books.

	Jan. 01, 2005 Rs.	Dec. 31, 2005 Rs.
Sundry creditors	45,000	93,000
Loan from wife	66,000	57,000
Sundry debtors	22,500	—
Land and Building	89,600	90,000
Cash in hand	7,500	8,700
Bank overdraft	25,000	—
Furniture	1,300	1,300
Stock	34,000	25,000

During the year Mr. Ashok sold his private car for Rs. 50,000 and invested this amount into the business. He withdrew from the business Rs. 1,500 per month upto July 31, 2005 and thereafter Rs. 4,500 per month as drawings. You are required to prepare the statement of profit or loss and statement of affair as on December 31, 2005.
[*Ans* : Loss : Rs. 57,900].

13. Krishna Kulkarni has not kept proper books of accounts prepare the statement of profit or loss for the year ending December 31, 2005 from the following information:

	Jan. 01, 2005 (Rs.)	Dec. 31, 2005 (Rs.)
Cash in hand	10,000	36,000
Debtors	20,000	80,000
Creditors	10,000	46,000
Bills receivable	20,000	24,000
Bills payable	4,000	42,000
Car	—	80,000
Stock	40,000	30,000
Furniture	8,000	48,000
Investment	40,000	50,000
Bank balance	1,00,000	90,000

The following adjustments were made :

(a) Krishna withdrew cash Rs. 5,000 per month for private use.
(b) Depreciation @ 5% on car and furniture @10% .
(c) Outstanding Rent Rs. 6,000.
(d) Fresh Capital introduced during the year Rs.30,000.

[*Ans* : Profit : Rs. 1,41,200 ; Statement of affairs with adjusted : Rs. 4,29,200].

14. M/s Saniya Sports Equipment does not keep proper records. From the following information find out profit or loss and also prepare balance sheet for the year ended December 31, 2005

	Dec. 31, 2004	Dec. 31, 2005
	Rs.	Rs.
Cash in hand	6,000	24,000
Bank overdraft	30,000	—
Stock	50,000	80,000
Sundry creditors	26,000	40,000
Sundry debtors	60,000	1,40,000
Bills payable	6,000	12,000
Furniture	40,000	60,000
Bills receivable	8,000	28,000
Machinery	50,000	1,00,000
Investment	30,000	80,000

Drawing Rs.10,000 p.m. for personal use, fresh capital introduce during the year Rs.2,00,000. A bad debts of Rs.2,000 and a provision of 5% is to be made on debtors. outstanding salary Rs.2,400, prepaid insurance Rs.700, depreciation charged on furniture and machine @ 10% p.a.
[Ans : Profit : Rs. 1,71,300 ; Statement of affairs with adjustment : Rs. 4,87,700].

Ascertainment of Missing Figures

15. From the following information calculate the amount to be paid to creditors:

	Rs.
Sundry creditors as on March 31, 2005	1,80,425
Discount received	26,000
Discount allowed	24,000
Return outwards	37,200
Return inward	32,200
Bills accepted	1,99,000
Bills endorsed to creditors	26,000
Creditors as on April 01, 2006	2,09,050
Total purchases	8,97,000
Cash purchases	1,40,000

[*Ans* : Cash paid to creditors : Rs. 4,40,175].

16. Find out the credit purchases from the following:

	Rs.
Balance of creditors April 01, 2004	45,000
Balance of creditors March 31, 2005	36,000
Cash paid to creditors	1,80,000
Cheque issued to creditors	60,000
Cash purchases	75,000
Discount received from creditors	5,400
Discount allowed	5,000
Bills payable given to creditors	12,750
Return outwards	7,500
Bills payable dishonoured	3,000

Bills receivable endorsed to creditors	4,500
Bills receivable endorsed to creditors dishonoured	1,800
Return inwards	3,700

[*Ans* : Credit purchases : Rs. 2, 56,350].

17. From the following information calculate total purchases.

	Rs.
Creditors Jan. 01, 2005	30,000
Creditors Dec. 31, 2005	20,000
Opening balance of Bills payable	25,000
Closing balance of Bills payable	35,000
Cash paid to creditors	1,51,000
Bills discharged	44,500
Cash purchases	1,29,000
Return outwards	6,000

[*Ans* : Total purchases : Rs. 3,30,500].

18. The following information is given

	Rs.
Opening creditors	60,000
Cash paid to creditors	30,000
Closing creditors	36,000
Returns Inward	13,000
Bill matured	27,000
Bill dishonoured	8,000
Purchases return	12,000
Discount allowed	5,000

Calculate credit purchases during the year

[*Ans* : Credit purchases : Rs. 37,000].

19. From the following, calculate the amount of bills accepted during the year.

	Rs.
Bills payable as on April 01, 2005	1,80,000
Bills payable as on March 31, 2006	2,20,000
Bills payable dishonoured during the year	28,000
Bills payable honoured during the year	50,000

[*Ans* : Bills accepted : Rs. 1,18,000].

20. Find out the amount of bills matured during the year on the basis of information given below ;

	Rs.
Bills payable dishonoured	37,000
Closing balance of Bills payable	85,000
Opening balance of Bills payable	70,000
Bills payable accepted	90,000
Cheque dishonoured	23,000

[*Ans* : Bills matured : Rs. 38,000].

21. Prepare the bills payable account from the following and find out missing figure if any :

	Rs.
Bills accepted	1,05,000
Discount received	17,000
Purchases returns	9,000
Return inwards	12,000
Cash paid to accounts payable	50,000
Bills receivable endorsed to creditor	45,000
Bills dishonoured	17,000
Bad debts	14,000
Balance of accounts payable (closing)	85,000
Credit purchases	2,15,000

[*Ans* : Opening balance of creditors : Rs. 79,000].

22. Calculate the amount of bills receivable during the year.

	Rs.
Opening balance of bills receivable	75,000
Bill dishonoured	25,000
Bills collected (honoured)	1,30,000
Bills receivable endorsed to creditors	15,000
Closing balance of bills receivable	65,000

[*Ans* : Rs. 1,60,000].

23. Calculate the amount of bills receivable dishonoured from the following information.

	Rs.
Opening balance of bills receivable	1,20,000
Bills collected (honoured)	1,85,000
Bills receivable endorsed	22,800
Closing balance of bills receivable	50,700
Bills receivable received	1,50,000

[*Ans* : Rs. 11,500].

24. From the details given below, find out the credit sales and total sales.

	Rs.
Opening debtors	45,000
Closing debtors	56,000
Discount allowed	2,500
Sales returns	8,500
Irrecoverable amount	4,000
Bills receivables received	12,000
Bills receivable dishonoured	3,000
Cheque dishonoured	7,700
Cash sales	80,000
Cash received from debtors	2,30,000
Cheque received from debtors	25,000

[*Ans* : Total sales : Rs. 3,62,300].

25. From the following information, prepare the bills receivable account and total debtors account for the year ended December 31, 2005.

	Rs.
Opening balance of debtors	1,80,000
Opening balance of bills receivable	55,000
Cash sales made during the year	95,000
Credit sales made during the year	14,50,000
Return inwards	78,000
Cash received from debtors	10,25,000
Discount allowed to debtors	55,000
Bills receivable endorsed to creditors	60,000
Cash received (bills matured)	80,500
Irrecoverable amount	10,000
Closing balance of bills receivable on Dec. 31, 2005	75,500

[*Ans* : Bills received : Rs. 1,61,000 ; Closing balance of debtors : Rs. 3,01,000].

26. Prepare the suitable accounts and find out the missing figure if any.

	Rs.
Opening balance of debtors	14,00,000
Opening balance of bills receivable	7,00,000
Closing balance of bills receivable	3,50,000
Cheque dishonoured	27,000
Cash received from debtors	10,75,000
Cheque received and deposited in the bank	8,25,000
Discount allowed	37,500
Irrecoverable amount	17,500
Returns inwards	28,000
Bills receivable received from customers	1,05,000
Bills receivable matured	2,80,000
Bills discounted	65,000
Bills endorsed to creditors	70,000

[*Ans* : Credit sales : Rs. 5,16,000].

27. From the following information ascertain the opening balance of sundry debtors and closing balance of sundry creditors.

	Rs.
Opening stock	30,000
Closing stock	25,000
Opening creditors	50,000
Closing debtors	75,000
Discount allowed by creditors	1,500
Discount allowed to customers	2,500
Cash paid to creditors	1,35,000
Bills payable accepted during the period	30,000
Bills receivable received during the period	75,000
Cash received from customers	2,20,000
Bills receivable dishonoured	3,500
Purchases	2,95,000

The rate of gross profit is 25% on selling price and out of the total sales Rs. 85,000 was for cash sales.

(*Hint* : Total sales = 4,00,000 $= 3,00,000 \times \frac{100}{75}$)

[*Ans* : Opening balance of debtors : Rs. 54,000 ; Closing balance of creditors: Rs. 1,78,500].

28 Mrs. Bhavana keeps his books by Single Entry System. You're required to prepare final accounts of her business for the year ended December 31, 2005. Her records relating to cash receipts and cash payments for the above period showed the following particulars :

Summary of Cash

Dr. **Cr.**

Receipts	*Amount Rs.*	*Payments*	*Amount Rs.*
Opening balance of cash	12,000	Paid to creditors	53,000
Further capital	20,000	Business expenses	12,000
Received from debtors	1,20,000	Wage paid	30,000
		Bhavana's drawings	15,000
		Balance at bank on Dec. 31,2005	35,000
		Cash in hand	7,000
	1,52,000		1,52,000

The following information is also available :

	Jan. 01, 2005 Rs.	Dec. 31, 2005 Rs.
Debtors	55,000	85,000
Creditors	22,000	29,000
Stock	35,000	70,000
Plant	10,00,000	1,00,000
Machinery	50,000	50,000
Land & Building	2,50,000	2,50,000
Investment	20,000	20,000

All her sales and purchases were on credit. Provide depreciation on plant and building by 10% and machinery by 5%, make a provision for bad debts by 5%.

[*Ans* : Gross profit ; Rs. 95,000 ; Net profit : Rs. 41,250 ; Total of balance sheet : Rs. 5, 75,250].

Checklist to Test Your Understanding

1. *Test Your Understanding - I*

   1. (a) 2. (d) 3. (a) 4. (b)

2. *Test Your Understanding - II*

   1. Total debtors
   2. Opening capital, closing capital
   3. Fresh capital introduced, drawings
   4. Small traders

Applications of Computers in Accounting 12

LEARNING OBJECTIVES

After studying this chapter, you will be able to :

- *state the meaning, elements and capabilities of computer system;*
- *explain the need for computers in accounting;*
- *describe the automation of accounting process;*
- *explain design of accounting reports from the accounting data;*
- *list the various Management Information System (MIS) reports and their uses;*
- *explain the data interface between information systems.*

Computer technology and its usage have registered a significant development during the last three decades. Historically, computers have been used effectively in science and technology to solve the complex computational and logical problems. They have also been used for carrying out economic planning and forecasting processes. Recently, modern day computers have made their presence felt in business and industry. The most important impact of computers has been on the manner in which data is stored and processed within an organisation. Although manual data processing for Management Information System (MIS) has been quite common in the past, modern MIS would be nearly impossible without the use of computer systems. In this chapter we shall discuss the need for the use of computers in accounting, the nature of accounting information system and the types of accounting related MIS reports.

12.1 Meaning and Elements of Computer System

A computer is an electronic device, which is capable of performing a variety of operations as directed by a set of instructions. This set of instructions is called a computer programme. A computer system is a combination of six elements:

12.1.1 Hardware

Hardware of computer consists of physical components such as keyboard, mouse, monitor and processor. These are electronic and electromechanical components.

12.1.2 Software

A set(s) of programmes, which is used to work with such hardware is called its software. A coded set of instructions stored in the form of circuits is called firmware. There are six types of software as follows:

(a) *Operating System* : An integrated set of specialised programmes that are meant to manage the resources of a computer and also facilitate its operation is called operating system. It creates a necessary interface that is an interactive link, between the user and the computer hardware.

(b) *Utility Programmes* : These are a set of computer programmes, which are designed to perform certain supporting operations: such as programme to format a disk, duplicate a disk, physically reorganise stored data and programmes.

(c) *Application Software* : These are user oriented programmes designed and developed for performing certain specified tasks: such as payroll accounting, inventory accounting, financial accounting, etc.

(d) *Language Processors* : These are the software, which check for language syntax and eventually translate (or interpret) the source programme (that is a programme written in a computer language) into machine language (that is the language which the computer understands).

(e) *System Software* : These are a set of programmes which control such internal functions as reading data from input devices, transmitting processed data to output devices and also checking the system to ensure that its components are functioning properly.

(f) *Connectivity Software* : These are a set of programmes which create and control a connection between a computer and a server so that the computer is able to communicate and share the resources of server and other connected computers.

12.1.3 People

People interacting with the computers are also called *live-ware* of the computer system. They constitute the most important part of the computer system :

- *System Analysts* are the people who design data processing systems.
- *Programmers* are the people who write programmes to implement the data processing system design.
- *Operators* are the people who participate in operating the computers. People who respond to the procedures instituted for executing the computer programmes are also a part of live-ware.

12.1.4 Procedures

The procedure means a series of operations in a certain order or manner to achieve desired results. There are three types of procedures which constitute

part of computer system: hardware-oriented, software-oriented and internal procedure. Hardware–oriented procedure provide details about components and their method of operation. The software-oriented procedure provides a set of instructions required for using the software of computer system. Internal procedure is instituted to ensure smooth flow of data to computers by sequencing the operation of each sub-system of overall computer system.

12.1.5 Data

These are facts and may consist of numbers, text, etc. These are gathered and entered into a computer system. The computer system in turn stores, retrieves, classifies, organises and synthesises the data to produce information according to a pre-determined set of instructions. The data is, therefore, processed and organised to create information that is relevant and can be used for decision-making.

12.1.6 Connectivity

It is being acknowledged as a sixth element of the computer system. The manner in which a particular computer system is connected to others say through telephone lines, microwave transmission, satellite link, etc. is the element of connectivity.

12.2 Capabilities of Computer System

A computer system possesses some characteristics, which, in comparison to human beings, turn out to be its capabilities. These are as follows ;

Speed : It refers to the amount of time computers takes in accomplishing a task or completes an operation. Computers require far less time than human beings in performing a task. Normally, human beings take into account a second or minute as unit of time. But computers have such a fast operating capability that the relevant unit of time is fraction of a second. Most of the modern computers are capable of performing a 100 million calculations per second and that is why the industry has developed Million Instructions per Second (MIPS) as the criterion to classify different computers according to speed.

Accuracy : It refers to the degree of exactness with which computations are made and operations are performed. One might spend years in detecting errors in computer calculations or updating a wrong record. Most of the errors in Computer Based Information System(CBIS) occur because of bad programming, erroneous data and deviation from procedures. These errors are caused by human beings. Errors attributable to hardware are normally detected and corrected by the computer system itself. The computers rarely commit errors and perform all types of complex operations accurately.

Reliability : It refers to the ability with which the computers remain functional to serve the user. Computers systems are well-adapted to performing repetitive operations. They are immune to tiredness, boredom or fatigue. Therefore, they are more reliable than human beings. Yet there can be failures of computer system due to internal and external reasons. Any failure of the computer in a highly automated industry is unacceptable. Therefore, the companies in such situations provide for back-up facility to swiftly take over operations without loss of time.

Versatility : It refers to the ability of computers to perform a variety of tasks: simple as well as complex. Computers are usually versatile unless designed for a specific application. A general purpose computer is capable of being used in any area of application: business, industry, scientific, statistical, technological, communications and so on. A general purpose computer, when installed in an organisation, can take over the jobs of several specialists because of its versatility. computer system when installed can take over the jobs of all these specialists because of being highly versatile. This further ensures fuller utilisation of its capability.

Storage : It refers to the amount of data a computer system can store and access. The computer systems, besides having instant access to data, have huge capacity to store such data in a very small physical space. A CD-ROM with 4.7" of diameter is capable of storing a large number of books, each containing thousands of pages and yet leave enough space for storing more such material. A typical mainframe computer system is capable of storing and providing online billion of characters and thousands of graphic images.

It is clear from the above discussion that computer capabilities outperform the human capabilities. As a result, a computer, when used properly, will improve the efficiency of an organisation.

12.3 Limitations of a Computer System

In spite of possessing all the above capabilities, computers suffer from the following limitations :

Lack of Commonsense : Computer systems as on date do not possess any common sense because no full-proof algorithm has been designed to programme common sense. Since computers work according to a stored programme(s), they simply lack of commonsense.

Zero IQ : Computers are dumb devices with zero Intelligence Quotient (IQ). They cannot visualise and think what exactly to do under a particular situation, unless they have been programmed to tackle that situation. Computers must be directed to perform each and every action, however, minute it may be.

Lack of Decision-making : Decision-making is a complex process involving information, knowledge, intelligence, wisdom and ability to judge. Computers cannot take decisions on their own because they do not possess all the essentials of decision-making. They can be programmed to take such decisions,

which are purely procedure-oriented. If a computer has not been programmed for a particular decision situation, it will not take decision due to lack of wisdom and evaluating faculties. Human beings, on the other hand, possess this great power of decision-making.

12.4 Components of Computer

The functional components of computer system consist of Input Unit, Central Processing System and Output Unit. The way these components are embedded in a computer may differ from one architectural design to another, yet all of them constitute the essential building blocks of a computer system. Diagrammatically, these components may be presented as follows:

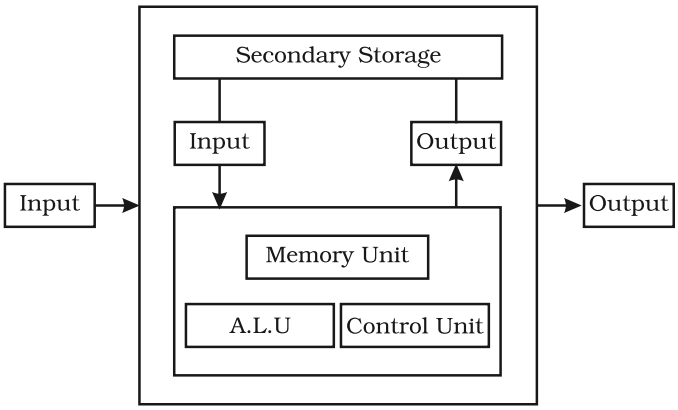


Fig. 12.1 : *Block diagram of main components of computer*

12.4.1 Input Unit

It controls various input devices which are used for entering data into the computer system. Keyboard and mouse, for instance, are the most commonly used input device. Other such devices are magnetic tape, magnetic disk, light pen, optical scanner, Magnetic Ink Character (MICR) Recognition, Optical Character Recognition (OCR), bar code reader, smart card reader, etc. Besides, there are other devices which respond to voice and physical touch. A menu layout is displayed on a touch sensitive screen. Whenever user touches a menu item on touch-screen, the computer senses which particular menu item has been touched and accordingly performs the operation associated with that menu item. Such touch screens have been installed at major railway stations for obtaining the online information about arrival and departure of trains.

12.4.2 Central Processing Unit (CPU)

This is the main part of computer hardware that actually processes data, according to the instructions it receives. It controls the flow of data by directing the data to enter the system, places the data into its memory, retrieves the same as and when needed and directs the output of data according to a set of stored instructions. It has three main units as described below :

(a) *Arithmetic and Logic Unit (ALU)* : It is responsible for performing all the arithmetic computations such as addition, subtraction, division, multiplication and exponentiation. In addition to this, it also performs logical operations involving comparisons among variables and data items.

(b) *Memory Unit* : In this unit, data is stored before being actually processed. The data so stored is accessed and processed according to a set of instructions which are also stored in the memory of the computer well before such data is transmitted to the memory from input devices.

(c) *Control Unit* : This unit is entrusted with the responsibility of controlling and coordinating the activities of all other units of the computer system. Specifically, it performs the following functions :

- Read instructions out of memory unit;
- Decode such instructions;
- Set up the routing of data, through internal circuitry/wiring, to the desired place at right time; and
- Determine the input device from where to get next instruction after the instruction in hand has been executed.

12.4.3 Output Unit

After processing the data, the information produced according to a set of instruction need to be made available to user in a human readable and understandable form. A computer system, therefore, needs an output device to communicate such information to the user. Essentially, the output device is assigned the task of translating the processed data from machine coded form to a human readable form. The commonly used output devices include: external devices like monitor also called Visual Display Unit (VDU), printer, graphic plotter for producing graphs, technical drawings and charts and internal devices like magnetic storage devices. Recently, a new device being perfected is the speech synthesiser, which is capable of producing verbal output that sounds like human speech. Information:

12.5 Evolution of Computerised Accounting

Manual system of accounting has been traditionally the most popular method of keeping the records of financial transactions of an organisation.

Conventionally, the bookkeeper (or accountant) used to maintain books of accounts such as cash book, journal and ledger so as to prepare a summary of transactions and final accounts manually. The technological innovations led to the development of various machines capable of performing a variety of accounting functions. For example, the popular billing machine was designed to typewrite description of the transaction along with names, addresses of customers. This machine was capable of computing discounts; adding the net total and posting the requisite data to the relevant accounts. The customer's bill was generated automatically once the operator has entered the necessary information. These machines combined the features of a typewriter and various kinds of calculators.

With substantial increase in the number of transactions, the technology advanced further. With exponential increase in speed, storage and processing capacity, newer versions of these machines evolved. A computer to which they were connected operated these machines. The success of a growing organisation with complexity of transactions tended to depend on resource optimisation, quick decision-making and control. As a result, the maintenance of accounting data on a real-time (or spontaneous) basis became almost essential. Such a system of maintaining accounting records became convenient with the computerised accounting system.

12.5.1 Information and Decisions

An organisation is a collection of interdependent decision-making units that exist to pursue organisational objectives. As a system, every organisation accepts inputs and transforms them into outputs. All organisational systems pursue certain objectives through a process of resource allocation, which is accomplished through the process of managerial decision-making. Information facilitates decisions regarding allocation of resources and thereby assists an organisation in pursuit of its objectives. Therefore, the information is the most important organisational resource. Every medium sized to large organisation has a well-established information system that is meant to generate the information required for decision-making.

With the increasing use of information systems in organisations, Transaction Processing Systems (TPS) have started playing a vital role in supporting business operations. Every transaction processing system has three components: Input, Processing and Output. Since Information Technology (IT) follows the GIGO principle (Garbage in-Garbage out), it is necessary that input to the IT-based information system is accurate, complete and authorised. This is achieved by automating the input. A large number of devices are now available to automate the input process for a TPS.

12.5.2 Transaction Processing System

Transaction Processing Systems (TPS) are among the earliest computerised systems catering to the requirements of large business enterprises. The purpose of a typical TPS is to record, process, validate and store transactions that occur in the various functional areas of a business for subsequent retrieval and usage. A transaction could be internal or external. When a department requisitions material supplies from stores, an internal transaction is said to have occurred. However, when the purchase department purchases materials from a supplier, an external transaction takes place. The scope of financial accounting is confined to external transactions only. TPS involves following steps in processing a transaction. In order to understand these steps, let us consider a case wherein a customer withdraws money using the Automated Teller Machine (ATM) facility, as described below :

- *Data Entry* : The action data must be entered into the system before it is processed. There are a number of input devices to enter data: Keyboard, mouse, etc. For example, a bank customer operates an ATM facility to make a withdrawal. The actions taken by the customer constitute data, which is processed after validation by the computerised personal banking system.
- *Data Validation* : It ensures the accuracy and reliability of input data by comparing the same with some predetermined standards or known data. This validation is performed by error detection and error correction procedures. The control mechanism, wherein actual input is compared with the standard, is meant to detect errors while error correction procedures make suggestions for entering correct data input. The Personal Identification Number (PIN) of the customer is validated with the known data. If it is incorrect, a suggestion is made to indicate that the PIN is invalid. After validating the PIN (which is also a part of processing by TPS), the amount of withdrawal being made by the customer is also checked to ensure that it does not exceed a certain limit.
- *Processing and Revalidation* : The processing of data, representing actions of the ATM user, occurs almost instantaneously in case of the Online Transaction Processing (OLTP) system provided a valid data representing actions of the user has been encountered. This is called check input validity. Revalidation occurs to ensure that the transaction in terms of delivery of money by ATM has been completed. This is called check output validity.
- *Storage* : Processed actions, as described above, culminate into financial transaction data, which describe the withdrawal of money by a particular customer, are stored in transaction database of Computerised personal banking system. This implies that only valid transactions are stored in the database.
- *Information* : The stored data is processed using the query facility to produce desired information. A database supported by DBMS is bound to have standard Structured Query Language (SQL) support.

- *Reporting* : Finally, reports can be prepared on the basis of the required information content according to decision usefulness of report.

A simple computerised accounting system accepts the complete transaction data as input; stores such data in computer storage media (say hard disk) and retrieves the accounting data for processing as and when required for generating an accounting report, as output. The input-process-output diagram shown below indicates as to how accounting software translates data into information. This processing of data is accomplished either through Batch Processing or Real-time Processing.

Batch Processing applies to large and voluminous data that is accumulated offline from various units: branches or departments. The entire accumulated data is processed in one shot to generate the desired reports according to decision requirement.

Real-Time Processing provides online outcome in the form of information and reports without time lag between the transaction and its processing. The accounting reports are generated by query language popularly called *Structured Query Language* (SQL). It allows the user to retrieve report relevant information that is capable of being laid out in pre-designed accounting report.

Accounting software may be structured with such components as provide for storage and processing of data pertaining to purchase, sales, inventory, payroll and other financial transactions (refer figure 12.2).

Do It Yourself

Go to a departmental store and an ATM of a Bank and identify the accounting process there. Observe the Transaction Processing System (TPS).

12.6 Features of Computerised Accounting System

Accounting software is used to implement a computerised accounting system. The computer accounting system is based on the concept of databases. It does away with the concept of creating and maintaining journals, ledger, etc. which are essential while working with manual accounting system. Typicaly computerised accounting system offers the following features :

- Online input and storage of accounting data.
- Printout of purchase and sales invoices.
- Logical scheme for codification of accounts and transactions. Every account and transaction is assigned a unique code.
- Grouping of accounts is done from the very beginning.
- Instant reports for management, for example – Aging Statement, Stock Statement, Trial Balance, Trading and Profit and Loss Account, Balance Sheet, Stock Valuation, Value Added Tax (VAT), Returns, Payroll Report, etc.

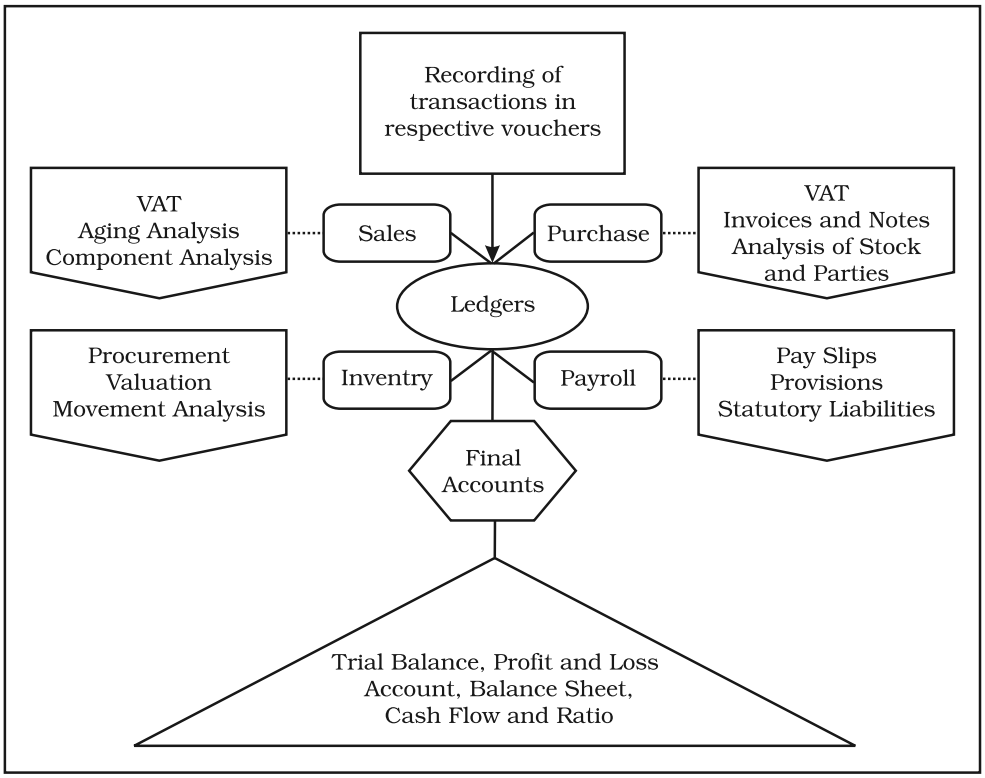


Fig. 12.2 : *Components of computerised accounting software system*

Test Your Understanding

Fill in the correct words :

1. The user oriented programmes designed and developed for performing certain specific tasks are called as .....
2. Language syntax is checked by software called as .....
3. The people who write programmes to implement the data processing system design are called as .....
4. .....is the brain of the computer.
5. .....and .....are two of the important requirements of an accounting report.
6. An example of responsibility report is .....

12.7 Management Information System and Accounting Information System

In order to remain competitive, organisations depend heavily on Information Systems. Management Information System (MIS) is used the most common form of information system. A management information system (MIS) is a system that provides the information necessary to take decisions and manage an organisation effectively. MIS is supportive of the institution's long-term strategic goals and objectives. MIS is viewed and used at many levels by management: Operational, Tactical and Strategic. Accounting Information System (AIS) identifies, collects, processes, and communicates economic information about an entity to a wide variety of users. Such information is organised in a manner that correct decisions can be based on it.

Every accounting system is essentially a part of the Accounting Information System (AIS) which, in turn is a part of the broader system, viz. the organisation's Management Information System.

The following diagram shows the relationship of the Accounting System with the other functional management information systems.

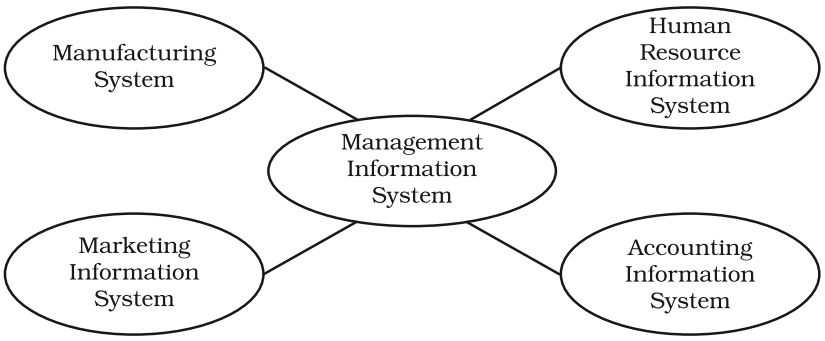


Fig. 12.3 : *Relationship of the accounting system with other functional management information system*

The diagram shown above entails the four widely recognised functional areas of management. An organisation operates in a given environment surrounded by the suppliers and customers. The informational needs emerge from the business processes stratified into functional areas where accounting is one of them. The accounting information system (AIS) receives and provides information to the various sub-systems of the institutional/ integrated MIS.

Accounting Information System (AIS) is a collection of resources (people and equipment), designed to transform financial and other data into information. This information is communicated to a wide variety of decision-makers. Accepting information systems performs this transformation whether they are essentially manual systems or thoroughly computerised.

Conventionally, MIS was also perceived as day-to-day financial accounting systems that are used to ensure basic control is maintained over financial record keeping activities, but now it is widely recognised as a broader concept and accounting system is a sub component.

The reports generated by the accounting system are disseminated to the various users – internal and external to the organisation. The external parties include the proprietors, investors, creditors, financiers, government suppliers and vendors and the society at large. The reports used by these parties are more of routine nature. However, the internal parties – the employees, managers, etc. use the accounting information for decision-making and control.

Do It Yourself

Go to a shoe manufacturing unit/chemical-processing unit. Observe the production process and the various selling activities. Visualise the need for a MIS. Identify the various sub components of the MIS.

12.7.1 Designing of Accounting Reports

Data when processed becomes information. When the related information is summarised to meet a particular need, it is called as a report. The content and design of the report is expected to vary depending upon *the level to which it is submitted* and *decision to made on the basis of the report*. A report must be effective and efficient to the user and should substantiate the decision-making process. Akin to any report, every accounting report must be able to fulfil the following criterion :

(a) Relevance
(b) Timeliness
(c) Accuracy
(d) Completeness
(e) Summarisation

The accounting reports generated by the accounting software may be either routine reports or on the specific requirements of the user. For example, the ledger is a routine report while a report on supplies of a particular item by a given party is an on-demand report. However, from a broader perspective, the accounting related MIS reports may be of following reports :

(a) *Summary Reports* : Summarises all activities of the organisation and present in the form of summary report. Profit and Loss account and Balance Sheet.
(b) *Demand Reports* : This report will be prepared only when the management requests them, e.g. Bad Debts Report for a given product, Stock Valuation Report.
(c) *Customer/Supplier Reports* : According to the specifications of the management it will be prepared. For example, Top 10 Customers report, Interest on Customer Account/Invoices, Statement of Account, Customer Reminder Letters Outstanding/Open Delivery Order, Purchase Analysis, Vendor Analysis report.
(d) *Exception Reports* : According to the conditions or exceptions the report is prepared. For example, Inventory Report in short supplies, Stock Status Query, Over stocked Status, etc.
(e) *Responsibility Reports* : The MIS structure specifies the premises of management responsibilities. For example, the report on Cash Position, to be submitted by the head of Finance and Accounts department.

The various steps involved in designing accounting reports from accounting data are as follows :

(1) Definition of objectives : the objectives of the report must be clearly defined, who are the users of the report and the decision to be taken on the basis of report.
(2) Structure of the report : the information to be contained therein and the style of presentation.
(3) Querying with the database : the accounting information queries must be clearly defined and the methodology to be adopted while interacting with the database.
(4) Finalising the report.

12.7.2 Data Interface between the Information System

Accounting information system is important component of the organisational MIS in an organisation. It receives information and provides information to the other functional MIS. The following examples illustrate the relationship and data interface between the various sub-components of MIS.

I Accounting Information System, Manufacturing Information System and Human Resource Information System

Look at figure 12.4. It depicts the relationship between the three information systems, viz. manufacturing information system, accounting information system and the human resource information system.

The manufacturing department receives the list of workers from the Human Resource (HR) department. It sends the details of production achieved by the workers on the basis of which the HR department to the finance and accounts (F&A) department to pay the wages. The details of the wages paid and statutory dues are also send by the F & A department to the production department also to the HR department to monitor the performance of workers. The HR department communicates to the other departments about the good/bad performance on the basis decision on various operational matters may be taken.

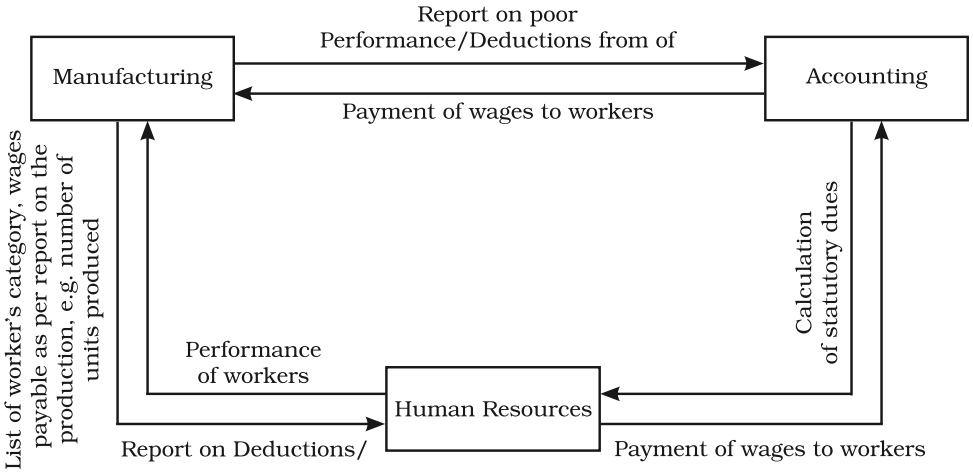


Fig. 12.4 : *Relationship between AIS, manufacturing information system and human resource information system*

II AIS and Marketing Information System

Consider the business process in the Marketing and Sales department involving the following activities :

- inquiry
- contact creation
- entry of orders
- dispatch of goods
- billing to customers

The accounting sub-system's transaction cycle include the processing of sales orders, credit authorisation, custody of the goods, inventory position, shipping information, receivables, etc. It also keeps a track of the customer accounts, e.g. Aging Report, which should be generated by the system.

III AIS and Manufacturing Information System

Similarly, business process in the production department may involve the following activities :

- preparation of plans and schedules
- issue of material requisition forms and job cards
- issue of inventory
- issue of orders for procurement of raw materials
- handling of vendors invoices
- payments to vendors

The accounting sub-system transaction cycle would therefore include the processing of purchase orders, advance to suppliers/vendors, inventory status updation, account payable, etc. All of this information has to share with the other MIS in the organisation.

Hence, the computerised accounting system as a sub component of the accounting information system transforms the financial data into meaningful information and communicates the information to the decision-makers. The report demanded may be routine or specific ones.

Key Terms Introduced in the Chapter

- Operating system
- Analysts
- Utility programme
- Data
- Application software
- Management information system
- Transactions processing system
- Accounting information system
- Data interface
- Report

Summary with Reference to Learning Objectives

1 *Meaning of a Computer* : Computer is an electronic device capable of performing variety of operations as desired by a set of instructions.

2 *Elements of a Computer System* :
- Hardware
- Software
- People
- Procedure
- Data
- Connectivity

3 *Capabilities of Computer* :
- Speed
- Accuracy
- Reliability
- Versatility
- Storage

4 *Need of Computers in Accounting* : The advent of globalisation has resulted in the rise in business operations. Consequently, every medium and large sized organisations require well-established information system in order to generate information required for decision-making and achieving the organisational objectives. This made information technology to play vital role in supporting business operations.

5 *MIS and Accounting Information System* : A management information system provides information necessary to take decisions and manage an organisation effectively. Accounting information system on the other hand identifies, collects, processes and communicates economic information about an entity to a wide variety of users.

6 *Accounting Reports* : Information supplied to meet a particular need is called report. An accounting report must fulfil the following conditions :

- Relevance
- Timeliness
- Accuracy
- Completeness
- Summarisation

Questions for Practice

Short Answers

1. State the different elements of a computer system.
2. List the distinctive advantages of a computer system over a manual system.
3. Draw block diagram showing the main components of a computer.
4. Give three examples of a transaction processing system.
5. State the relationship between information and decision.
6. What is Accounting Information System?
7. State the various essential features of an accounting report.
8. Name three components of a Transaction Processing System.
9. Give example of the relationship between a Human Resource Information System and MIS.

Long Answers

1. 'An organisation is a collection of interdependent decision-making units that exists to pursue organisational objectives'. In the light of this statement, explain the relationship between information and decisions. Also explain the role of Transaction Processing System in facilitating the decision-making process in business organisations.
2. Explain, using examples, the relationship between the organisational MIS and the other functional information system in an organisation. Describe how AIS receives and provides information to other functional MIS.
3. 'An accounting report is essential a report which must be able to fulfil certain basic criteria ' Explain? List the various types of accounting reports.
4. Describe the various elements of a computer system and explain the distinctive features of a computer system and manual system.

Checklist to Test Your Understanding

1. Application software
2. Language processor
3. Programmer
4. CPU
5. Timliness, Relevance
6. Cash position, Management responsibility

Computerised Accounting System

13

In chapter 12, you have learnt about the need for use of computers in accounting the nature and use of accounting information system. In this chapter, we shall discuss the nature of computrised accounting system, its advantages, limitations and sourcing.

LEARNING OBJECTIVES

After studying this chapter, you will be able to :

- *define a computerised accounting system;*
- *distinguish between a manual and computerised accounting system;*
- *highlight the advantages and limitations of computerised accounting system; and*
- *state the sourcing of a computerised accounting system.*

13.1 Concept of Computerised Accounting System

A computerised accounting system is an accounting information system that processes the financial transactions and events as per Generally Accepted Accounting Principles (GAAP) to produce reports as per user requirements. Every accounting system, manual or computerised, has two aspects. First, it has to work under a set of well-defined concepts called *accounting principles*. Another, that there is a user-defined framework for maintenance of records and generation of reports.

In a computerised accounting system, the framework of storage and processing of data is called *operating environment* that consists of hardware as well as software in which the accounting system, works. The type of the accounting system used determines the operating environment. Both hardware and software are interdependent. The type of software determines the structure of the hardware. Further, the selection of hardware is dependent upon various factors such as the number of users, level of secrecy and the nature of various activities of functional departments in an organisation.

Take the case of a club, for example, where the number of transactions and their variety is relatively small, a Personal Computer with standardised software may be sufficient. However, for a large business organisation with a number of geographically scattered factories and offices, more powerful computer systems supported by sophisticated networks are required to handle the voluminous data and the complex reporting requirements. In order to handle such requirements, multi-user operating systems such as UNIX, Linux, etc. are used.

Modern computerised accounting systems are based on the concept of *database*. A database is implemented using a database management system, which is define by a set of computer programmes (or software) that manage and organise data effectively and provide access to the stored data by the application programmes. The accounting database is well-organised with active interface that uses accounting application programs and reporting system. Every computerised accounting system has two basic requirements;

- *Accounting Framework* : It consists a set of principles, coding and grouping structure of accounting.
- *Operating Procedure* : It is a well-defined operating procedure blended suitably with the operating environment of the organisation.

The use of computers in any database oriented application has four basic requirements as mentioned below ;

- *Front-end Interface* : It is an interactive link or a dialog between the user and database-oriented software through which the user communicates to the back-end database. For example, a transaction relating to purchase of goods may be dealt with the accounting system through a purchase voucher, which appears on the computer's monitor of data entry operator and when entered into the system is stored in the database. The same data may be queried through reporting system say purchase analysis software programme.
- *Back-end Database* : It is the data storage system that is hidden from the user and responds to the requirement of the user to the extent the user is authorised to access.
- *Data Processing* : It is a sequence of actions that are taken to transform the data into decision useful information.
- *Reporting System*: It is an integrated set of objects that constitute the report.

The computerised accounting is also one of the database-oriented applications wherein the transaction data is stored in well-organised database. The user operates on such database using the required and desired interface and also takes the desired reports by suitable transformations of stored data into information. Therefore, the fundamentals of computerised accounting

embrace all the basic requirements of any database-oriented application in computers. Accordingly, the computerised accounting system has the above four additional requirements.

13.2 Comparison between Manual and Computerised Accounting

Accounting, by definition, is the process of identifying, recording, classifying and summarising financial transactions to produce the financial reports for their ultimate analysis. Let us understand these activities in the context of manual and computerised accounting system.

- *Identifying* : The identification of transactions, based on application of accounting principles is, common to both manual and computerised accounting system.
- *Recording* : The recording of financial transactions, in manual accounting system is through books of original entries while the data content of such transactions is stored in a well-designed accounting database in computerised accounting system.
- *Classification* : In a manual accounting system, transactions recorded in the books of original entry are further classified by posting into ledger accounts. This results in transaction data duplicity. In computerised accounting, no such data duplication is made to cause classification of transactions. In order to produce ledger accounts, the stored transaction data is processed to appear as classified so that the same is presented in the form of a report. Different forms of the same transaction data are made available for being presented in various reports.
- *Summarising* : The transactions are summarised to produce trial balance in manual accounting system by ascertaining the balances of various accounts. As a result, preparation of ledger accounts becomes a pre-requisite for preparing the trial balance. However, in computerised accounting, the originally stored transactions data are processed to churn out the list of balances of various accounts to be finally shown in the trial balance report. The generation of ledger accounts is not a necessary condition for producing trial balance in a computerised accounting system.
- *Adjusting Entries* : In a manual accounting system, these entries are made to adhere to the principle of cost matching revenue. These entries are recorded to match the expenses of the accounting period with the revenues generated by them. Some other adjusting entries may be made as part of errors and rectification. However, in computerised accounting, Journal vouchers are prepared and stored to follow the principle of cost matching revenue, but there is nothing like passing adjusting entries for errors and rectification, except for rectifying an error of principle by having recorded a wrong voucher such as using payment voucher for a receipt transaction.

- *Financial Statements* : In a manual system of accounting, the preparation of financial statements pre-supposes the availability of trial balance. However, in computerised accounting, there is no such requirement. The generation of financial statements is independent of producing the trial balance because such statements can be prepared by direct processing of originally stored transaction data.
- *Closing the Books* : After the preparation of financial reports, the accountants make preparations for the next accounting period. This is achieved by posting of closing and reversing journal entries. In computerised accounting, there is year-end processing to create and store opening balances of accounts in database.

It may be observed that conceptually, the accounting process is identical regardless of the technology used.

13.3 Advantages of Computerised Accounting System

Computerised accounting offers several advantages vis-a-vis manual accounting, these are summarised as follows ;

- *Speed* : Accounting data is processed faster by using a computerised accounting system than it is achieved through manual efforts. This is because computers require far less time than human beings in performing a task.
- *Accuracy* : The possibility of error is eliminated in a computerised accounting system because the primary accounting data is entered once for all the subsequent usage and processes in preparing the accounting reports. Normally, accounting errors in a manual accounting system occur because of repeated posting of same set of original data by several times while preparing different types of accounting reports.
- *Reliability* : The computer system is well-adapted to performing repetitive operations. They are immune to tiredness, boredom or fatigue. As a result, computers are highly reliable compared to human beings. Since computerised accounting system relies heavily on computers, they are relatively more reliable than manual accounting systems.
- *Up-to-Date Information* : The accounting records, in a computerised accounting system are updated automatically as and when accounting data is entered and stored. Therefore, latest information pertaining to accounts get reflected when accounting reports are produced and printed.

  For example, when accounting data pertaining to a transaction regarding cash purchase of goods is entered and stored, the cash account, purchase account and also the final accounts (trading and profit and loss account) reflect the impact immediately.

- *Real Time User Interface* : Most of the automated accounting systems are inter-linked through a network of computers. This facilitates the availability of information to various users at the same time on a real time basis (that is spontaneously).
- *Automated Document Production* : Most of the computerised accounting systems have standardised, user defined format of accounting reports that are generated automatically. The accounting reports such as Cash book, Trial balance, Statement of accounts are obtained just by click of a mouse in a computerised accounting environment.
- *Scalability* : In a computerised accounting system, the requirement of additional manpower is confined to data entry operators for storing additional vouchers. The additional cost of processing additional transactions is almost negligible. As a result the computerised accounting systems are highly scalable.
- *Legibility* : The data displayed on computer monitor is legible. This is because the characters (alphabets, numerals, etc.) are type written using standard fonts. This helps in avoiding errors caused by untidy written figures in a manual accounting system.
- *Efficiency* : The computer based accounting systems ensure better use of resources and time. This brings about efficiency in generating decisions, useful informations and reports.
- *Quality Reports* : The inbuilt checks and untouchable features of data handling facilitate hygienic and true accounting reports that are highly objective and can be relied upon.
- *MIS Reports* : The computerised accounting system facilitates the real time production of management information reports, which will help management to monitor and control the business effectively. Debtors' analysis would indicate the possibilities of defaults (or bad debts) and also concentration of debt and its impact on the balance sheet. For example, if the company has a policy of restricting the credit sales by a fixed amount to a given party, the information is available on the computer system immediately when every voucher is entered through the data entry form. However, it takes time when it comes to a manual accounting system. Besides, the results may not be accurate.
- *Storage and Retrieval* : The computerised accounting system allows the users to store data in a manner that does not require a large amount of physical space. This is because the accounting data is stored in hard-disks, CD-ROMs, floppies that occupy a fraction of physical space compared to books of accounts in the form of ledger, journal and other accounting registers. Besides, the system permits fast and accurate retrieval of data and information.

- *Motivation and Employees Interest* : The computer system requires a specialised training of staff, which makes them feel more valued. This motivates them to develop interest in the job. However, it may also cause resistance when we switch over from a manual system to a computer system.

Test Your Understanding

1. The framework of storage and processing of data is called as .....
2. Database is implemented using .....
3. A sequence of actions taken to transform the data into decision useful information is called.....
4. An appropriate accounting software for a small business organisation having only one user and single office location would be .....

13.4 Limitations of Computerised Accounting System

The main limitations emerge out of the environment in which the computerised accounting system is made to operate. These limitations are as given below ;

- *Cost of Training* : The sophisticated computerised accounting packages generally require specialised staff personnel. As a result, a huge training costs are incurred to understand the use of hardware and software on a continuous basis because newer types of hardware and software are acquired to ensure efficient and effective use of computerised accounting systems.
- *Staff Opposition* : Whenever the accounting system is computerised, there is a significant degree of resistance from the existing accounting staff, partly because of the fear that they shall be made redundant and largely because of the perception that they shall be less important to the organisation.
- *Disruption* : The accounting processes suffer a significant loss of work time when an organisation switches over to the computerised accounting system. This is due to changes in the working environment that requires accounting staff to adapt to new systems and procedures.
- *System Failure* : The danger of the system crashing due to hardware failures and the subsequent loss of work is a serious limitation of computerised accounting system. However, providing for back-up arrangements can obviate this limitation. Software damage and failure may occur due to attacks by viruses. This is of particular relevance to accounting systems that extensively use Internet facility for their online operations. No full-proof solutions are available as of now to tackle the menace of attacks on software by viruses.

- *Inability to Check Unanticipated Errors* : Since the computers lack capability to judge, they cannot detect unanticipated errors as human beings commit. This is because the software to detect and check errors is a set of programmes for known and anticipated errors.
- *Breaches of Security* : Computer related crimes are difficult to detect as any alteration of data may go unnoticed. The alteration of records in a manual accounting system is easily detected by first sight. Fraud and embezzlement are usually committed on a computerised accounting system by alteration of data or programmes. Hacking of passwords or user rights may change the accounting records. This is achieved by tapping telecommunications lines, wire-tapping or decoding of programmes. Also, the people responsible for tampering of data cannot be located which in a manual system is relatively easier to detect.
- *Ill-effects on Health* : The extensive use of computers systems may lead to development of various health problems: bad backs, eyestrain, muscular pains, etc. This affects adversely the working efficiency of accounting staff on one hand and increased medical expenditure on such staff on the other.

Do It Yourself

Visit a commercial organisation where the accounting is performed manually. Observe the various accounting activities. Now list the advantages, which would have accrued, had the accounting being performed through computers.

13.5 Sourcing of Accounting Software

Accounting software is an integral part of the computerised accounting system. An important factor to be considered before acquiring accounting software is the accounting expertise of people responsible in organisation for accounting work. People, not computers, are responsible for accounting. The need for accounting software arises in two situations : (a) when the computerised accounting system is implemented to replace the manual system or (b) when the current computerised system needs to be replaced with a new one in view of changing needs.

Box 1
Accounting Software

Variety of accounting software is available in the market. The most popular software used in India are Tally and Ex. The basic features of all accounting software are same on a global basis. The legal reporting requirements in a given country and the business needs affect the software contents. The other popular softwares are Sage, Wings 2000, Best Books, Cash Manager, and Ace Pays, etc.

13.5.1 Accounting Packages

Every Computerised Accounting System is implemented to perform the accounting activity (recording and storing of accounting data) and generate reports as per the requirements of the user. From this perspective.

The accounting packages are classified into the following categories :

(a) Ready to use
(b) Customised
(c) Tailored

Each of these categories offers distinctive features. However, the choice of the accounting software would depend upon the suitability to the organisation especially in terms of accounting needs.

13.5.2 Ready-to-Use

Ready-to-Use accounting software is suited to organisations running small/ conventional business where the frequency or volume of accounting transactions is very low. This is because the cost of installation is generally low and number of users is limited. Ready-to-use software is relatively easier to learn and people (accountant) adaptability is very high. This also implies that level of secrecy is relatively low and the software is prone to data frauds. The training needs are simple and sometimes the vendor (supplier of software) offers the training on the software free. However, these software offer little scope of linking to other information systems.

13.5.3 Customised

Accounting software may be customised to meet the special requirement of the user. Standardised accounting software available in the market may not suit or fulfil the user requirements. For example, standardised accounting software may contain the sales voucher and inventory status as separate options. However, when the user requires that inventory status to be updated immediately upon entry of sales voucher and report be printed, the software needs to be customised.

Customised software is suited large and medium businesses and can be linked to the other information systems. The cost of installation and maintenance is relatively high because the high cost is to be paid to the vendor for customisation. The customisation includes modification and addition to the software contents, provision for the specified number of users and their authentication, etc. Secrecy of data and software can be better maintained in customised software. Since the need to train the software users is important, the training costs are therefore high.

13.5.4 Tailored

The accounting software is generally tailored in large business organisations with multi users and geographically scattered locations. These software requires specialised training to the users. The tailored software is designed to meet the specific requirements of the users and form an important part of the organisational MIS. The secrecy and authenticity checks are robust in such softwares and they offer high flexibility in terms of number of users.

To summarise, the following table represents the comparison between the various categories of accounting software :

Basis	*Ready to use*	*Customised*	*Tailored*
Nature of business	Small, conventional business	Large, medium business	Large, typical business
Cost of installation and maintenance	Low	Relatively high	High
Expected Level of secrecy (Software and Data)	Low	Relatively high	Relatively high
Number of users and their interface	Limited	As per specifications	Unlimited
Linkage to other information system	Restricted	yes	Yes
Adaptability	High	Relatively high	Specific
Training requirements	Low	Medium	High

Do It Yourself

Visit a branch of a commercial bank and a big shopping complex. See the various activities performed there and analyse the accounting needs. Identify an appropriate type of accounting package for performing the accounting activities.

13.6 Generic Considerations before Sourcing an Accounting Software

The following factors are usually taken in considerations before sourcing an accounting software.

13.6.1 Flexibility

An important consideration before sourcing an accounting software is flexibility, viz. data entry and the availability and design of various reports expected from it. Also, it should offer some flexibility between the users of the software, the switch over between the accountants (users), operating systems and the hardware. The user should be able to run the software on variety of platforms and machines, e.g. Windows 98/2000, Linux, etc.

13.6.2 Cost of Installation and Maintenance

The choice of the software obviously requires consideration of organisation ability to afford the hardware and software. A simple guideline to take such a decision is the cost benefit analysis of the available options and the financing opportunities available to the firm. Some times, certain software which appears cheap to buy, involve heavy maintenance and alteration costs, e.g. cost of addition of modules, training of staff, updating of versions, data failure/restoring costs. Conversely, the accounting software which appear initially expensive to buyers, may require least maintenance and free upgrading and negligible alteration costs.

13.6.3 Size of Organisation

The size of organisation and the volume of business transactions do affect the software choices. Small organisations, e.g. in non-profit organisations, where the number of accounting transactions is not so large, may opt for a simple, single user operated software. While, a large organisation may require sophisticated software to meet the multi-user requirements, geographically scattered and connected through complex networks.

13.6.4 Ease of Adaptation and Training needs

Some accounting software is user friendly requiring a simple training to the users. However, some other complex software packages linked to other information systems require intensive training on a continuous basis. The software must be capable of attracting users and, if its requires simple training, should be able to motivate its potential users.

13.6.5 Utilities/MIS Reports

The MIS reports and the degree to which they are used in the organisation also determine the acquisition of software. For example, software that requires

simply producing the final accounts or cash flow/ratio analysis may be ready-to-use software. However, the software, which is expected to produce cost records needs to be customised as per user requirements.

13.6.6 Expected Level of Secrecy (Software and Data)

Another consideration before buying accounting software is the security features, which prevent unauthorised personnel from accessing and/or manipulating data in the accounting system. In tailored software for large businesses, the user rights may be restricted to purchase vouchers for the purchase department, sales vouchers to the billing accountants and petty cash module access with the cashier. The operating system also matters. Unix environment allows multi-users compared to Windows. In Unix, the user cannot make the computer system functional unless the user clicks with a password, which is not a restriction in Windows.

13.6.7 Exporting/Importing Data Facility

The transfer of database to other systems or software is sometimes expected from the accounting software. Organisations may need to transfer information directly from the ledger into spreadsheet software such as Lotus or Excel for more flexible reporting. The software should allow the hygienic, untouched data transfer.

Accounting software may be required to be linked to MIS software in the organisation. In some ready to use accounting softwares, the exporting, importing facility is available but is limited to MS Office modules only, e.g. MS Word, MS Excel, etc. However, tailored softwares are designed in manner that they can interact and share information with the various sub components of the organisational MIS.

13.6.8 Vendors Reputation and Capability

Another important consideration is the reputation and capability of about the vendor. This depends upon how long has he been the vendor is in business of software development, whether there are other users of the software and extent of the availability of support mechanisms outside the premises of the vendor.

Key Terms Introduced in the Chapter

- Computerised Accounting System
- Generally Accepted Accounting Principles
- Accounting Software
- Mannual Accounting System
- Operating Environment
- Accounting Packages

Summary with Reference to Learning Objectives

1 *Computerised Accounting System* : A computerised accounting system is an accounting information system that processes the financial transactions and events to produce reports as per user requirements. It is based on the concept of database and has two basic requirements: (a) Accounting framework and (b) Operating Procedure.

2 *Advantages of Computerised Accounting System* :
- Speed
- Reliability
- Scalability
- Efficiency
- MIS Reports
- Storage and Retrieval
- Automated document production
- Accuracy
- Up-to-date
- Legibility
- Quality Report
- Real time user interface
- Motivation and Employees interest

3 *Limitations of Computerised Accounting System* :
- Cost of training
- Disruption
- Breaches of security
- Inability to check unanticipated errors
- Staff Opposition
- System failure
- Ill-effects on health

4 *Categories of Accounting Packages* :
- Ready-to-Use
- Tailored
- Customised

Questions for Practice

Short Answers

1. State the four basic requirements of a database applications.
2. Name the various categories of accounting package.
3. Give examples of two types of operating systems.
4. List the various advantages of computerised accounting systems.
5. Give two examples each of the organisations where 'ready-to-use', 'customised', and 'tailored' accounting packages respectively suitable to perform the accounting activity.
6. Distinguish between a 'ready-to-use' and 'tailored' accounting software.

Long Answers

1. Define a computerised accounting system. Distinguish between a manual and computerised accounting system.
2. Discuss the advantages of computerised accounting system over the manual accounting system.
3. Describe the various types of accounting software along with their advantages and limitations.
4. 'Accounting software is an integral part of the computerised accounting system' Explain. Briefly list the generic considerations before sourcing an accounting software.
5. 'Computerised Accounting Systems are best form of accounting system'. Do you agree? Comment.

Checklist to Test Your Understanding

1. Operating environment 2. DBMS 3. Data Processing 4. Ready to use

Structuring Database for Accounting

14

LEARNING OBJECTIVES

After studying this chapter, you will be able to :

- *identify the resources of MS ACCESS as DBMS;*
- *explain basic concepts of database system;*
- *express accounting reality in the context of Entity Relationship (ER) Model;*
- *transform ER presentation of accounting reality into database;*
- *develop database design for computerised system using Relational Data Model;*
- *formulate basic queries for retrieving accounting data and information.*

In the earlier chapters, you have already learnt that accounting of transactions are documented with vouchers. Let us consider a few accounting transaction to understand as to how these vouchers are used.

On April 01, 05 M/s Kshipra Computers commences business with initial capital of Rs.5,00,000, which is deposited into bank. Recall the journal entry that is recorded using manual accounting system. This journal entry has data contents that are filled-up using a simple transaction voucher, which is prepared by Smith and authorised by Aditya.

M/s Kshipra Computers

TRANSACTION VOUCHER

Voucher No: 01 **Date:** Apr. 01, 2005

Debit Account: 642001 Bank Account

Credit Account: 110001 Capital Account

Amount in Rs. : 5,00,000

Narration: Commenced business by depositing initial capital into bank

Authorised By: Aditya **Prepared By** Smith

Fig. 14.1 : *A sample transaction voucher to document simple transactions involving one debit and one credit*

The same transaction can also be documented using a credit voucher that is capable of recording multiple credits against one debit, as shown below:

CREDIT VOUCHER

Voucher No: 01 **Date:** April 01,2005

Debit Account: 642001 Bank Account **M/s Kshipra Computers**

Credit Accounts

S.No	Code	Name of Account	Amount	Narration
1	110001	Capital Account	5,00,000	Commenced Business
		Total Amount	5,00,000	

Authorised By: Aditya **Prepared By** Smith

Fig. 14.2 : *A sample voucher for multiple credits against one debit*

Now consider the following transaction :
On April 03-20005 M/s Kshipra Computers bought goods costing Rs.50,000 from M/s R.S. and Sons, paying Rs.2,000 as cartage to M/s Saini Transports. This transaction involves multiple debits of accounts with one account being credited. The debit voucher that is used to document this transaction appears as follows :

DEBIT VOUCHER

Voucher No: 05 **Date:** April 03, 2005

Credit Account: 642001 Bank Account **M/s Kshipra Computers**

Debit Accounts

S.No	Code	Name of Account	Amount	Narration
1	711001	Purchases	50,000	Purchases from R.S & Sons
2.	711003	Carriage Inwards	2,000	Paid to M/s Saini Transports
		Total Amount	52,000	

Authorised By: Aditya **Prepared By** Smith

Fig. 14.3 : *A sample vouchers for multiple debits against one credit*

The process of computerised accounting involves identifying, storing and retrieving the data content of an accounting transaction. This requires a mechanism to store such data content of vouchers in a manner that allows its easy and convenient retrieval as and when required. This is achieved by designing suitable database for accounting. Such a database consists of inter-related data tables that are structured in a manner that ensures data consistency and integrity. In this chapter we shall discuss the basic concepts of database system of accounting.

14.1 Data Processing Cycle

In order to understand the dynamics of database design, let us understand the data processing cycle in the context of accounting. Data processing involves the technique of collecting, sorting, relating, interpreting and computing data items in such a manner as to provide meaningful and useful information for decision-making. The necessary steps involved in data processing cycle are data capturing, inputing, processing and generating information available to the user. Data processing cycle, when thought of in the context of accounting, requires a series of steps that have been described below briefly :

(i) *Source Documents* : The first step is to capture accounting data from transaction(s) so as to prepare a document, called voucher (as already stated earlier), that expresses and documents an accounting transaction. The relevant accounting data is set out in the voucher, the sample of which is shown in figures 14.1 to 14.3. These documents are so designed as to permit the recording of accounting data in a systematic manner.

(ii) *Input of Data* : The accounting data contained in vouchers is to be entered in a computer's storage device. This is achieved by using a pre-designed Data Entry Form. This data entry form is designed in a manner that it is similar to physical voucher document. The data entry form is designed using software and it is made to appear on the computer monitor so that the data is entered.

(iii) *Data Storage* : A suitable data storage structure is required to provide for a blank data record as shown below:

Code	*Name*	*Type*

The above blank record that is used for storing the input of data pertaining code of account, name of account and the category type to which it belongs is shown below as :

Code	*Name*	*Type*
11001	Capital Account	4
711001	Purchases Account	1

Hypothetically, the category type 4 above refers to *Liabilities* and the category type 1 indicates *Expenses*. The data storage structures (also called data tables) are created as a part of structuring database for accounting.

(iv) *Manipulation of Data* : The stored data is manipulated for necessary transformation to generate final reports. Such transformed data may be stored separately and subsequently used for generating final reports. Alternatively, the transformed data can be directly presented in the form of a report.

(v) *Output of Data* : The accounting reports such as ledger, trial balance, etc. are obtained in a pre-designed format by accessing the transformed data.

Now that you have understood the way data content is stored in structured manner, we shall discuss how the data structures are designed in consonance with the data content that emerges from accounting transactions.

14.2 Designing Database for Accounting

Both computerised and computer-based AIS require a definite data structure for storing the accounting data. As already mentioned, the databases are used for storing accounting data. The process of designing database (for accounting) begins with a reality (or accounting reality) that is expressed using elements of a conceptual data model. The process of designing a database for accounting is best described through a flow chart (Figure : 14.4).

Reality : It refers to some aspect of real world situation, for which database is to be designed. In the context of accounting, it is accounting reality that is to be expressed with complete description.

ER Design : This is a formal blue print, with a pictorial presentation, in which Entity Relationship (ER) Model concepts are used to represent description of reality.

Relational Data Model : It is representational data model through which ER design is transformed into inter-related data tables along with the restriction in the form of rules that are specified to ensure the consistency and integrity of stored data.

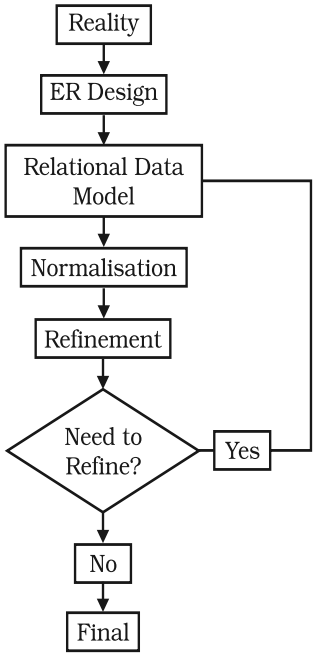


Fig. 14.4 : *Flow Chart depicting the process of designing a database for accounting*

Normalisation : This is process of refining a database design (that consists of inter-related data tables) through which the possibility of duplicate or redundant data items is reduced or eliminated.
Refinement : This is the outcome of the process of normalisation as mentioned above. The final database design is arrived at after the process of normalisation is completed.

14.3 Entity Relationship (ER) Model

It is a popular conceptual data model, which is mostly used in database-oriented applications. The major elements of ER Model are entities, attributes, identifiers and relationships that are used to express a reality for which a database is to be designed. The model is best depicted with the help of ER symbols, the list and description of which is shown in figure 14.5. While preparing an ER Diagram, the following symbols are used to represent different types of entities, attributes, identifiers and relationships :

The elements of ER model that are meant to describe and display the reality are discussed in the context of an accounting reality given below :

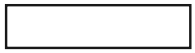
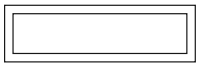
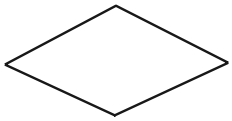
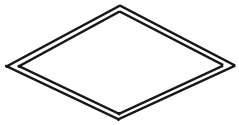
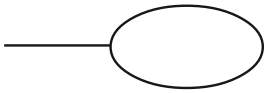
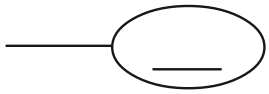
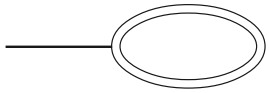
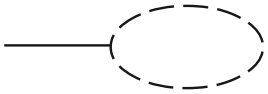
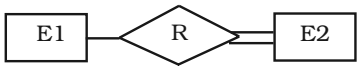
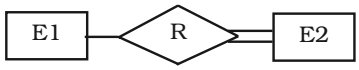
Meaning	**Symbols**
Entity Type as Rectangular Box	
Weak entity Type as double lined Rectangular Box	
Relationship Type as diamond shaped Box	
Identifying relationship Type as double lined diamond shaped Box	
Attribute names enclosed in ovals and attached to their entity type by straight lines.	
Key attribute names enclosed in ovals and attached to their entity type by straight lines.	
Multi-valued attributes by double ovals.	
Derived attributes by dashed line Ovals	
Total participation of **E2** in **R**	
Cardinality Ratio 1 : N for **E1 : E2** in **R**	

Fig. 14.5 : *Symbols used for constructing an ER diagram*

Accounting Reality Describing the System of Accounting

Using a hypothetical example of accounting system of an organisation, following statements of reality becomes the starting point of discussion in describing the ER Model concepts.

Example Reality :

- Accounting Transactions of an organisation are documented using a voucher.
- Each vouchers is assigned a serial number, which begins with "01" indicating first vouchers of the accounting period. There is only one simple transaction voucher used for documenting the transactions (See Figure : 14.1).
- Each **voucher** documents date of transaction, account name along with its account code for debit as well as credit entry.
- Each voucher indicates the amount and narration with respect to accounting transaction.
- **Support documents** such as bills, receipts, contracts, etc. also may be attached to an accounting voucher.
- Each Voucher is prepared by a particular **Employee** and authorised by another employee.
- There is an exhaustive list of **Accounts** with respect to which the transactions are documented. Each Account carries a unique numeric code with its width equal to six digits.
- Each Account is classified as belonging to one of the **Accounts Types**: Expenditure, Income, Assets and Liabilities.

Fig. 14.6 : *Example reality on accounting system*

14.3.1 Entities

Anything in the real world with independent existence is called **entity** such as an **object** with *physical existence* (e.g. car, person, house) or *conceptual existence* (e.g. a company, job, university course, account, voucher). In the context of above accounting reality, there exist five entities: Accounts, Vouchers, Employees, AccountsType and SupportDocuments. The accounting data is captured through these entities.

14.3.2 Attributes

Attributes are some properties of interest (or characteristics) that further describe the entity such as height, weight and date of birth in case of a *person* and code and name in case of *accounts*. An entity has a **value** for each of its attributes, which is the data stored in the database.

There are several types of attributes of an entity that have been described as follows :

(i) *Composite vs. Simple (or atomic) attributes* : The composite attributes can be divided into smaller sub-parts to represent some more basic

attributes with independent meanings. The simple attributes cannot be further sub-divided. For example, Name of a person that is normally sub-divided into First Name, Middle Name and Last Name is a composite attribute. Height of a person is a simple attribute as it is devoid of further sub-division.

(ii) *Single-valued vs. Multi-valued Attributes* : An attribute with a single value for an entity is single-valued as opposed to those which multiple values. For example, height of a person is single-valued attribute while qualifications of that person are a multi-valued attribute.

(iii) *Stored vs. Derived Attributes* : Two or more attributes may be related in such a way that one or more becomes basic while the other becomes dependent on that basic attribute. For example, date of birth of a person is a stored attribute while age of that person is derived attribute.

(iv) *Null Values* : Absence of a data item is represented by a special value called null value. There are three situation which may require the use of null values
- When a particular attribute does not apply to an entity;
- Value of an attribute is unknown, although it exists;
- Unknown because it does not exist.

(v) *Complex Attributes* : The composite and multi-valued attributes may be nested (or grouped) to constitute complex ones. The parenthesis () are used for showing grouping of components of composite attributes. The *braces* {} are used for showing the multi-valued attributes

In the context of the example on accounting reality, the following attributes specific to each entity types have been stated below as :

Entity Type	*List of Attributes*
AccountsType	CatId, Category
Accounts	Code, Name, Type
Employees	EmpId, Fname, Minit, Lname, SuperId
Vouchers	Vno, Date, Debit, Credit, Amount, Narration, AuthBy, PrepBy
SupportDocuments	Sno, dDate, Name

AccountsType is a conceptual entity that is meant to express the various categories of accounts in accounting system. The CatId is an attribute of AccountType entity, the value of which is used to identify the category of accounts.

Accounts is a conceptual entity that is meant to express various accounts, each one of which belongs to a particular category of accounts in Accounts Type Entity. Every account is assigned a unique code by which it is

identified. The Name attribute specifies the name of account and Type refers to the type of account (or category of account) as mentioned above.

Employees is a physical entity that is meant to express the various employees who are in some way connected with the accounting system. The EmpId (Employee ID) attribute is meant to identify an Employee; Fname, Minit and Lname are respectively the first, middle and Last names of an employee; and SuperId refers to EmpId of the immediate boss of an employee.

Vouchers is an entity that expresses various transactions vouchers. It is attributes together provide the structure of transaction data.

SupportDocuments is an entity, which expresses various support documents that may be attached with a particular voucher of a transaction. Sno attribute of this entity specifies the serial number of support document attached, dDate specifies the document date and Name specifies the name of document that is attached with the voucher.

(vi) *Entity Types and Entity Sets* : An **Entity Type** is defined as a collection of entities, which share a common definition in terms of their attributes. Each entity type is assigned a name for its subsequent identification. The attributes of entity type are used to describe it in the database. The values of attributes of an entity belonging to entity type are known as **Entity Instance**. For example, (110001 Capital Account 4) is an entity instance of an account whose code = 110001, Name = Capital Account and Type = 4. An **Entity Set** is a collection of all entity instances of a particular entity type. An Entity Type is described by a set of attributes called "schema". The set of entities pertaining to a particular entity type share the same set of attributes. The collection of entities of a particular entity type is grouped into entity set, called the *extension* of the entity type. For example,

Entity Type : Accounts
Intension (or structure) of entity type

Code	*Name*	*Type*

Entity Set: Collection of entity instances of an entity type **"**Accounts"
Extension (or instances) of entity type

110001	Capital Account	4
221019	Jain & Co.	4
221020	Jayram Bros.	4

Fig. 14.7 : *Examples on entity type and entity set*

(vii) *Value Sets of Attributes* : Each simple attribute is associated with a **value set,** which specifies the set of possible values that may be assigned to a particular attribute. For example, the value set of voucher date is all those dates that fall within the dates valid for a given accounting period. Similarly, if accounting reality states that each code of an account is numeric with its width equal to six digits, its possible value set shall be 000001 to 999999. The value set as described above is called domain of values.

14.3.3 Identifier (or Key Attributes of an Entity Type)

Almost every entity type has one of its attributes, which contains unique values for identifying the entity instance. For example, RollNo as attribute of Entity type *students* has unique values through which a student instance can be identified. Similarly, *Code* is a key attribute of entity type *Accounts* because its data values are required to be unique.

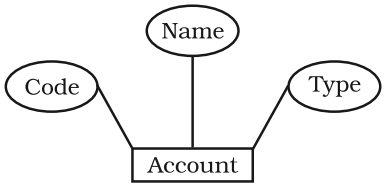


Fig. 14.8 : *Diagrammatic presentation of an entity type accounts with code as key attribute*

Some times two or more such attribute together (called composite key) may constitute such distinct values. For example, the student entity type that has entity instances across several sections of a class in a school shall require a composite key of attributes (Sections and RollNo). But in any case, it is a constraint that does not allow any two-entity instances from having the same value for the key attribute at a point of time. Some entities may have more than one Key attribute. The entity types, which do not have a key attribute at all are called weak entities.

14.3.4 Relationships

Relationship among two or more entity types represents an interaction among their respective entities. Whenever *an attribute* (say Debit) of one entity type (say vouchers) refers to another entity type (say Accounts), there exists a relationship between these entities (Vouchers and Account).

For example, vouchers and accounts are related in two ways: vouchers contain debit account(s) and vouchers contain credit account(s). In ER Model, these *references* are represented as explicit *relationships* rather than attributes.

(i) *Types of relationships* : Whenever entities from different entity types are related to one another in a particular manner, they constitute a relationship type. The relationship prepared by between the two entity types vouchers and employees associates each voucher with the employee who prepared it. Similarly, the relationship authorised by between the two entity types vouchers and employees associates each voucher with the employee who authorises it. Each relationship instance of prepared by (short named as **PrepBy**) associates one voucher entity with one employee entity. In ER diagrams, relationship types are displayed as diamond shaped boxes, connected by straight lines to the rectangular boxes, which represent the participating entity types.

Fig. 14.9 : *Diagram showing binary relationship between vouchers and employees*

(ii) *Degree* : The degree of a relationship type is the number of participating entity types. A relationship type of degree two is called binary and that of degree three is called ternary. A VOUCHER (entity), Authorised_by (relationship) and EMPLOYEES (entity) together signify a *binary* relationship. A SUPPLIER (entity) SUPPLY (relationship) PARTS (entity) to PROJECT (entity) signify a *ternary* relationship because three entities, namely supplier, parts and projects are participating in supply relationship in any transaction.

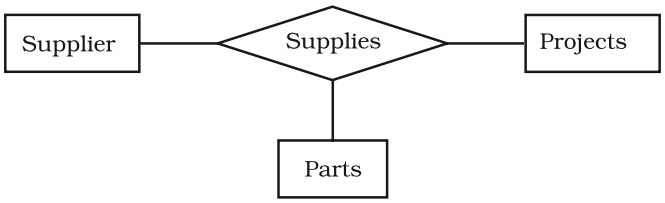


Fig. 14.10 : *Diagram showing ternary relationship between suppliers, parts and projects*

(iii) *Role Names* : Each entity type that participates in a relationship type plays a particular role in the relationship. The role name signifies the role that a participating entity of an entity type plays in each relationship instance. In PREPARED BY relationship type, EMPLOYEE plays the role of *document creator* and voucher plays the role of *document created.*

(iv) *Structural Constraints* : The reality may impose certain constraints (or restrictions) that may limit the possible combinations of entities, participating in a given relationship set. These are of two types : *Cardinality Ratio and participation.*

- *Cardinality Ratios* for binary relationship specifies the number of relationship instances that an entity can participate in. In PREP_BY binary relationship type, VOUCHER:EMPLOYEE is of cardinality ratio N:1 implying thereby that a set of vouchers can be created by a particular employee. The possible cardinality ratios are one to one (1:1),one to many(1:N),many to one(N:1), and many to many(N:M).
- *Participation* constraint specifies as to whether the existence of an entity type depends on its being related to another entity via a relationship type or not. The two types of such constraints are: total and partial. Whenever semantics of reality require that every entity of an entity type must relate to another entity type, such an entity can exist only if it participates in that specific relationship. Such a participation is called total participation. For example, the participation of ACCOUNTS in CLASSIFY relationship is total participation. This is because every account must refer to at least one of the accounts type or a category of accounts. This participation is also called *existence dependency*. Since every employee is not expected to prepare at least one of the vouchers, the participation of employee in PREPARED BY relationship is partial, implying that some of employee entities are related to the voucher entity via PREPARED BY relationship. In ER diagram, *total participation* is displayed as *double line* connecting the participating entity type to the relationship, whereas *partial participation* is represented by a *single line.*

14.3.5 Weak Entity Types

Entity Types, which do not have identifier (or key attributes) of their own are, called *weak entity* types. Such entity types are identified by being related to specific entities from another entity type in combination with some of their attribute values. These other entity types are called *identifying or owner entity* type. Accordingly, the relationship type that relates a weak entity type to its owner is called *identifying relationship* of the weak entity.

A weak entity type always has a total participation constraint (existence dependency) with respect to its identifying relationship because it cannot be identified without its owner entity. For example, a voucher may be accompanied by a set of support documents such as bills, issued by other parties to the transaction, details of which need be stored. Such SUPPORT" DOCUMENT entity type which is used to keep track of support documents attached to each voucher via 1:N relationship, is a weak entity. This is because they are identified as distinct entities only after determining the particular voucher. A weak entity type normally has a partial key, which is a set of attribute that can uniquely identify weak entities that are related to the same owner entity. Assuming that two support documents of a voucher do not have the same *document Id*, the said Id can be a good partial key. Otherwise a composite attribute of all the weak entity's attributes will be the partial key.

Initial Conceptual Design for an Example Reality : Using a hypothetical example of an accounting system, as already stated above in Fig: 14.6, following initial design based on ER Model concepts becomes the starting point of illustration.

Conceptual Design : According to the requirements listed in example reality, there exist five entities: Vouchers, Accounts, Employees, SupportDocuments and AccountsType·

- An entity type *Vouchers* with attributes Voucher No, Serial No, Voucher Date, Debit Account, Credit Account, Amount, Narration, authorised by, prepared by are used for storing accounting data of a transactions. Debit and amount are multi-valued attributes for debit vouchers and credit and amount are multi-valued for credit vouchers. *Voucher No and Sno* together constitutes the only key attribute of entity type vouchers. Therefore, it is specified to be unique.
- A Conceptual entity type *Accounts* with attributes Code, Name and Type is used for keeping and maintaining a record of all accounts. Both *Code* and Name qualify to be the key attributes because of being specified as unique.
- An Entity Type *Employee* with attributes Employee ID (EmpId), Name, Address, Phone, ID of immediate boss (SuperId) is used to maintain records of employees in the organisation. Name is a composite attribute with its simple attributes as: First Name (Fname), Middle Initial (Minit) and Last Name (Lname). The *EmpId*, specified to be unique, is the key attribute. SuperId indicates the EmpId of the controlling officer, the immediate boss.
- An entity type, *Accounts Type* with attributes CatId and Category is used to maintain records of various categories of accounts so that each of the accounts as stored in accounts entity are able to find their suitable place in financial accounting reports: profit and loss account and also the balance sheet.
  An entity type called Support with attributes Sno. and Name is used to maintain records of all the support documents, which are annexed to the accounting voucher.

Fig. 14.11 : *Details of initial conceptual design based on example reality*

14.3.6 ER Presentation of Accounting Reality

The example reality shown at Figure: 14.11 can be shown below diagrammatically by using the ER notations.:

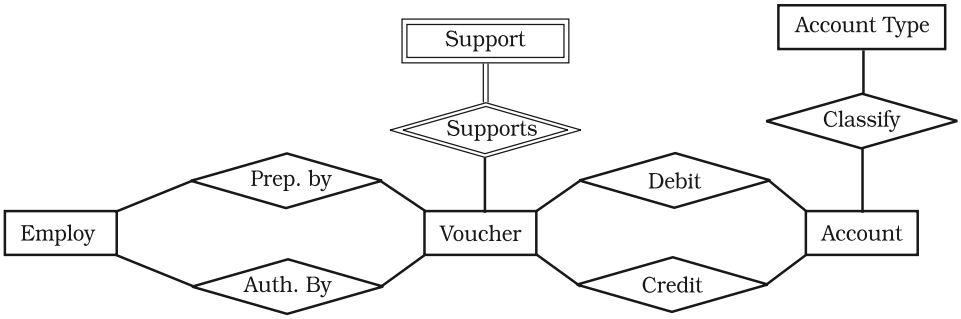


Fig. 14.12 : *ER Schema diagram for accounting database*

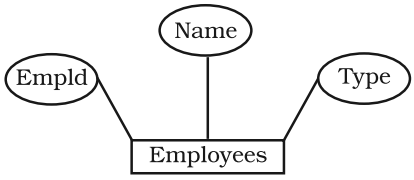


Fig. 14.13 : *Diagrammatic presentation of an entity type accounts with code as key attribute*

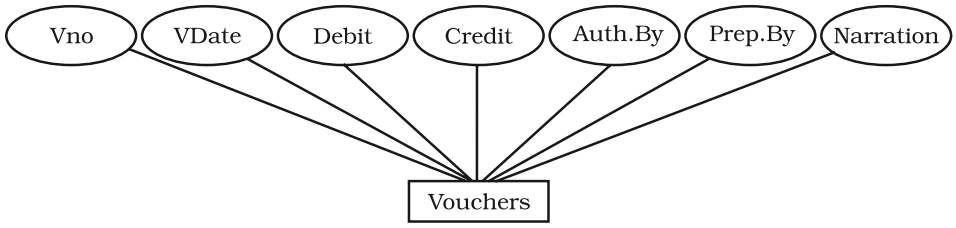


Fig. 14.14 : *Diagrammatic presentation of an entity type accounts with code as key attribute*

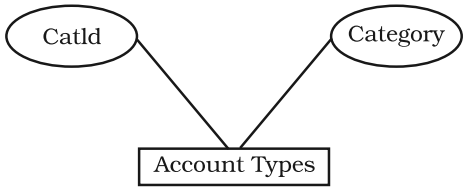


Fig. 14.15 : *Diagrammatic presentation of an entity type accounts with code as key attribute*

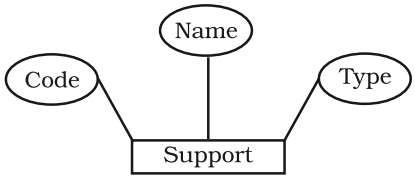


Fig.14.16 : *Diagrammatic presentation of an entity type accounts with code as key attribute*

14.4 Database Technology

It refers to a set of techniques that are used to design a database. These techniques use certain concepts, which are crucial to the creation of structure and development of the design. These concepts are: Reality, data, database, information, DBMS and database system. A brief description of these concepts is given below:

(a) *Reality* : It implies some aspect of the real world. It consists of an organisation, its different components and the environment in which the organisation exists and operates. Any organisation includes people, facilities and other resources that are organised to achieve certain goals. Each organisation operates within an environment. While operating, the organisation *interacts*, influences and gets influenced by the environment.

An organisation may be viewed as a system consisting of several components called its sub-systems. Each of these sub-systems follows certain procedures and continuously interacts with each other and their external environment to accomplish the goals of organisation. During the course of their interaction, events take place, which take the shape of data items. These sub-systems communicate continuously with AIS to provide data and seek information. A part of AIS is Financial Accounting System, which is designed for processing accounting transactions. For example,a firm uses a voucher to document an accounting transaction. The contents of voucher consist of accounting data, which need be stored in an organised manner.

This continuous interaction results in real world transactions. These transactions are analysed with a view to identify the components called data items. A data item is the smallest named unit of data in an information system. In a transaction, the names of accounts (or their accounting codes), date of transaction, amount, etc. is all data items.

(b) *Data* : Data are known facts that can be recorded and which have implicit meaning. Data represent facts concerning people, places, objects, entities, events or even concepts. Data can be quantitative and qualitative or they can be financial and non-financial in character. Consider the following transaction :

April 01, 2005 Commenced business with Cash Rs. 5,00,000.

This transaction, before being recorded through a Transaction Voucher, as shown in figure 14.1, need be split up into its data contents as "01", 01-Apr-05, 642001, Bank Account, 110001,Capital Account, Rs.5,00,000. Data are not useful for decision-making unless they are processed to suit to the requirements of decision-making situation.

(c) *Database* : The data, after being collected, has to be stored so that different people can use them. This requires the creation of a database. A database is a shared collection of interrelated data tables, files or structures, which are designed to meet the varied informational needs of an organisation (See Example database in figure 14.19. It has two important properties (or characteristics): *one* it is integrated and *second* it is shared. *Integrated property* implies that distinct data tables have been logically organised. The purpose is to reduce or eliminate redundancy (or duplicity) and also to facilitate better data access. The *shared property* means that all those who are authorised to use data/information have access to relevant data. Thus, a database is a collection of related data that represents some aspect of the real world (called *mini-world* or Reality). Accordingly, accounting database is a collection of related accounting data to represent some aspect of an accounting information system. Database is designed, built and populated (or loaded) with data for a specific purpose.

(d) *Information* : refers to data that have been processed and organised in a form, which is suitable for decision-making. The raw data when processed in accordance with decision usefulness of a decision-maker becomes information. In other words, information is a data that have been processed and refined and then presented in a format that is convenient for decision-making or other organisational activities.

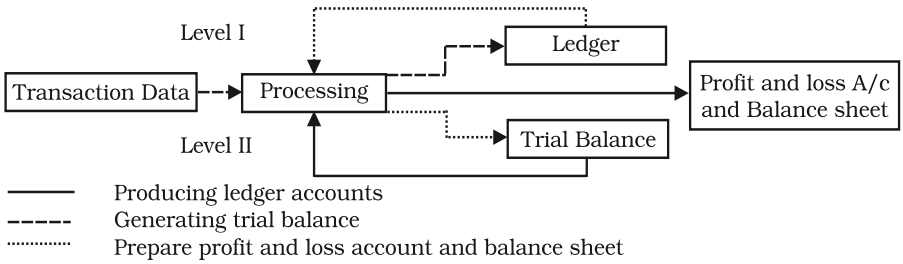


Fig. 14.17 : *The diagram showing the transaction data processing and information levels*

However, information may be viewed as data at one level. But when it is processed keeping in view the requirements of decision situation, it becomes information at another level. For example, accounting data at transaction level is processed to produce balances of each account. The balances are summarised to prepare the trial balance. The amounts given in trial balance constitute data to produce profit and loss account and balance sheet.

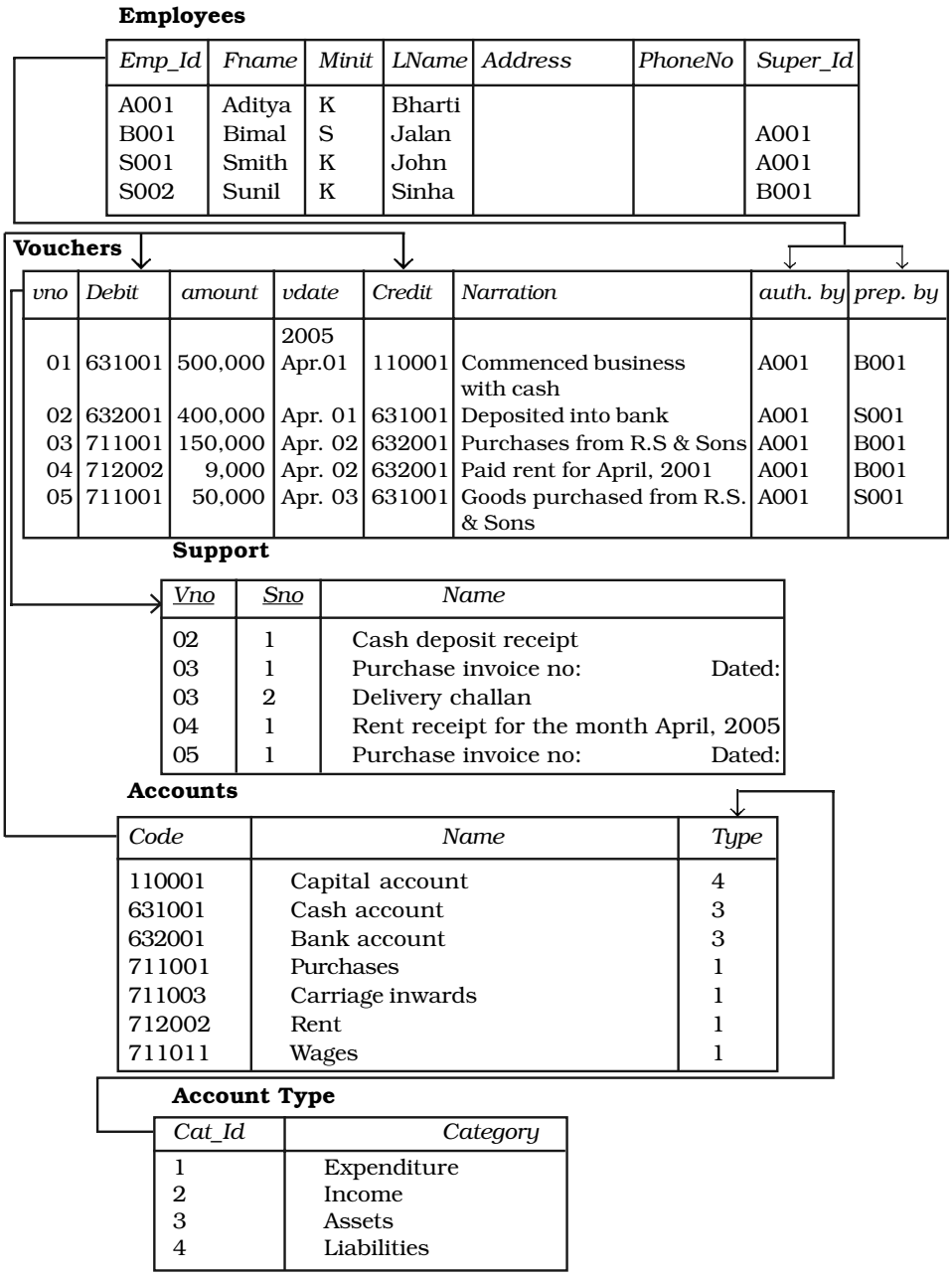
(e) *Database management System* (DBMS) is a collection of programs that enables users to create and maintain a database. Formally, it may be defined as a general-purpose software system that facilitates the processes of defining, constructing and manipulating (or processing) databases for various applications. General-purpose software is defined as a set of programs, which are designed and developed for a community of users and not for any particular application with respect to a particular user.

14.5 An Illustration of Accounting Database

Consider an example of **ACCOUNTING** database for maintaining data pertaining to accounting transactions, support documents, accounts and employees with which the students of accounting are familiar. Figure 14.18 shows below the database structure and some sample data for this database, depicting the following transactions :

Date	*Transactions*	*Amount Rs.*
2005		
Apr. 01	Commenced business with cash	5,00,000
Apr. 01	Cash deposited Into bank	4,00,000
Apr. 02	Goods purchased and payment made by Cheque No. 765421	1,50,000
Apr. 02	Rent for the month of April, 2001 paid by Cheque No. 765423	9,000
Apr. 03	Goods purchased for cash from R.S. & Sons	50,000

Fig. 14.18 : *Accounting transactions of an organisation*



Employees

Emp_Id	*Fname*	*Minit*	*LName*	*Address*	*PhoneNo*	*Super_Id*
A001	Aditya	K	Bharti			
B001	Bimal	S	Jalan			A001
S001	Smith	K	John			A001
S002	Sunil	K	Sinha			B001

Vouchers

vno	*Debit*	*amount*	*vdate*	*Credit*	*Narration*	*auth. by*	*prep. by*
			2005				
01	631001	500,000	Apr.01	110001	Commenced business with cash	A001	B001
02	632001	400,000	Apr. 01	631001	Deposited into bank	A001	S001
03	711001	150,000	Apr. 02	632001	Purchases from R.S & Sons	A001	B001
04	712002	9,000	Apr. 02	632001	Paid rent for April, 2001	A001	B001
05	711001	50,000	Apr. 03	631001	Goods purchased from R.S. & Sons	A001	S001

Support

Vno	*Sno*	*Name*
02	1	Cash deposit receipt
03	1	Purchase invoice no: Dated:
03	2	Delivery challan
04	1	Rent receipt for the month April, 2005
05	1	Purchase invoice no: Dated:

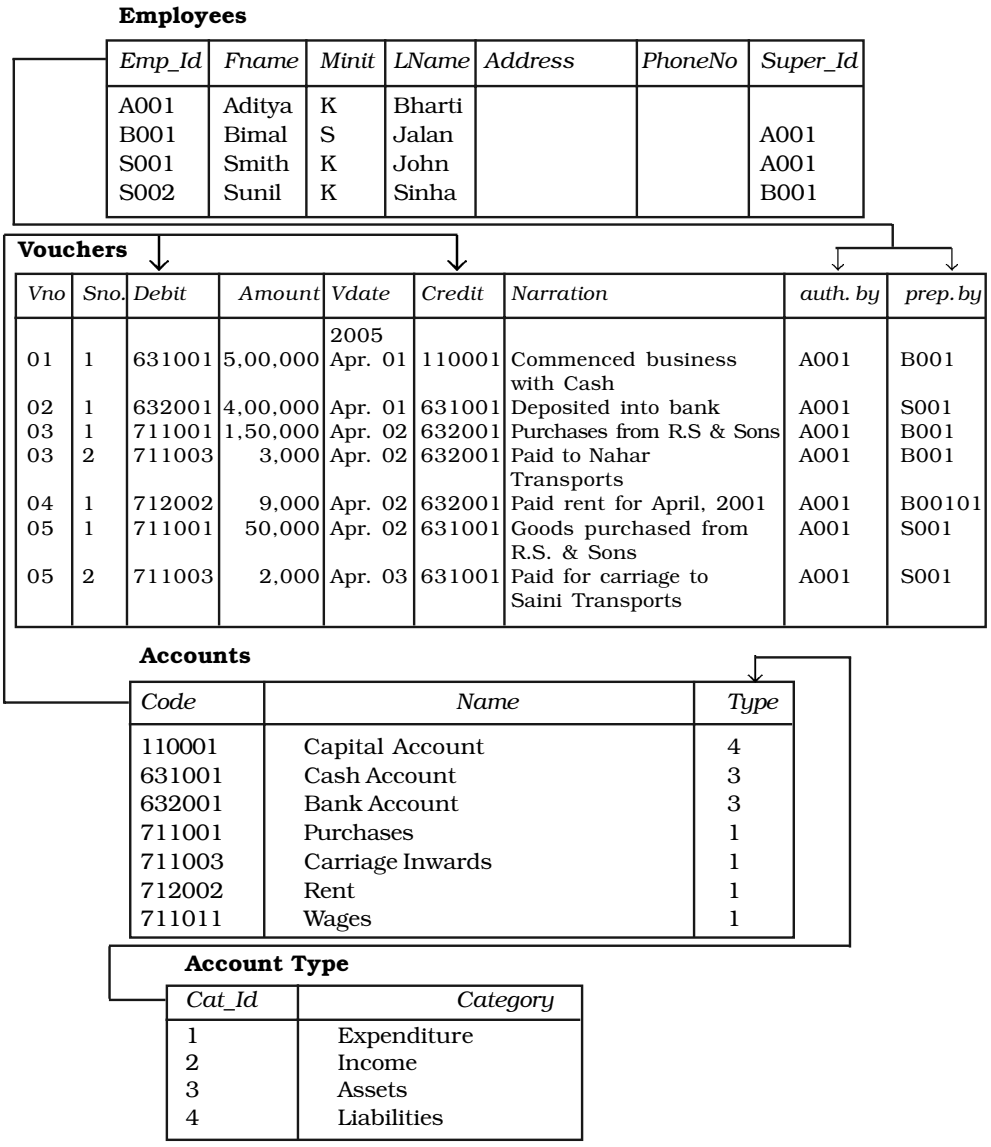
Accounts

Code	*Name*	*Type*
110001	Capital account	4
631001	Cash account	3
632001	Bank account	3
711001	Purchases	1
711003	Carriage inwards	1
712002	Rent	1
711011	Wages	1

Account Type

Cat_Id	*Category*
1	Expenditure
2	Income
3	Assets
4	Liabilities

Fig. 14.19 : *An example of an accounting database that stores simple accounting transactions*



Employees

Emp_Id	*Fname*	*Minit*	*LName*	*Address*	*PhoneNo*	*Super_Id*
A001	Aditya	K	Bharti			
B001	Bimal	S	Jalan			A001
S001	Smith	K	John			A001
S002	Sunil	K	Sinha			B001

Vouchers

Vno	*Sno.*	*Debit*	*Amount*	*Vdate*	*Credit*	*Narration*	*auth. by*	*prep. by*
				2005				
01	1	631001	5,00,000	Apr. 01	110001	Commenced business with Cash	A001	B001
02	1	632001	4,00,000	Apr. 01	631001	Deposited into bank	A001	S001
03	1	711001	1,50,000	Apr. 02	632001	Purchases from R.S & Sons	A001	B001
03	2	711003	3,000	Apr. 02	632001	Paid to Nahar Transports	A001	B001
04	1	712002	9,000	Apr. 02	632001	Paid rent for April, 2001	A001	B00101
05	1	711001	50,000	Apr. 02	631001	Goods purchased from R.S. & Sons	A001	S001
05	2	711003	2,000	Apr. 03	631001	Paid for carriage to Saini Transports	A001	S001

Accounts

Code	*Name*	*Type*
110001	Capital Account	4
631001	Cash Account	3
632001	Bank Account	3
711001	Purchases	1
711003	Carriage Inwards	1
712002	Rent	1
711011	Wages	1

Account Type

Cat_Id	*Category*
1	Expenditure
2	Income
3	Assets
4	Liabilities

Fig. 14.20 : *An example of an accounting database to store accounting transactions according to debit and credit vouchers support table omitted*

Modified Version of Accounting Database : An attempt to accommodate Debit and Credit vouchers, as shown in Figure: 14.2 and 14.3, results in adding a new column Sno to Vouchers table of database, which is shown in modified database in figure 14.19. This results in data redundancy as shown in figure 14.20.

ER Model, as already discussed above, is a conceptual model, which need be transformed into a representational data model so that a database design is formed for being implemented and operated upon by using DBMS. From among several representational models, Relational Data Model (RDM) is the most popular and widely used in actual practice. Let us understand some important concepts of RDM.

14.6 Relational Data Model

The relational data model represents the database as collection of relations, which resembles a table of values (or data table). Each row of the table, therefore, represents a collection of related data values and hence typically corresponds to real world entity or relationship. The table name and column names are used to help in interpreting the meaning of values in each row. Each row of a table is called a data record. All values in a column, which belong to a particular domain, are of same data type

Consider the following table of data items, named as *Accounts*. The table has rows and columns. The column arrow points to a column called Name. The Row arrow points to a data record consisting of (110001, Capital Account and 4) each of which corresponds to Code, Name and Type, which are three different columns of the table.

Name of Table : Accounts

Code	*Name*	*Type*
110001	Capital Account	4
221019	Jain & Co.	4
221020	Jayram Bros.	4
411001	Furniture Account	3

Fig. 14.21 : *Example data table of accounts and their attribute values*

Formally, a *row* is called a **tuple**, a *column* header is called an **attribute** and the *table* as such is called a **relation.** The data type describing the types of *values* (*such as text value, numeric values, date values, currency value, etc.*) *that* can *appear in each column* is called a **domain.** A domain is a set of indivisible values. Associated with every domain is a data type such as Number,

Text, Currency, Date/Time, etc. Each domain must also be named so as to help in interpreting its values. Besides this, a domain must be given a *format* and any *additional information* to enable correct interpretation of values. For example, a numeric domain such as distance should have units of measurement: Miles or Kilometers

(a) *Relations* : A relation schema is made up of a relation name and a list of its attributes. Each attribute is the name of role played by some domain in the relation schema**.** A relation is given an identity by its name and description by its schema. The degree of a relation is indicated by the number of attributes it contains. For example, the degree of a relation schema accounts is three as shown below :

ACCOUNTS (*Code*, Name, Type) ← Relation with attributes

ACCOUNTS *is name of the relation which has three attributes*;

Code = Identity of Account;
Name = Names of Account;
Type = Category of Account

A Relation represents an entity type. A relation (or relation state) is a set of tuples wherein each tuple is an ordered list of values corresponding to attributes of relation. Each of these values must belong to the domains of their respective attributes. Each tuple in this relation *represents* a particular entity. A relation schema may be interpreted as a declaration in the nature of an assertion. For example, the schema of accounts relation, as shown above, asserts that every account has a Code, Name and a Type. As a result, each tuple in accounts relation can be interpreted as a fact or an instance of assertion. Some relations represent facts about entities while others might represent facts about relationships.

(b) *Values in Tuples* : Each value in a tuple is an indivisible value to imply that it is not divisible into components within the framework of the basic relational model. This implies that composite and multi-valued attributes are not allowed. Composite attributes are represented by their simple components. The multi-valued attributes are represented by separate relations. A special value called *Null* is used to represent unknown or not applicable values of attributes in a tuple. It is also possible to devise different types of code values for different types of null value situation.

14.7 Relational Databases and Schemas

A relational database schema is a set of relation schemas and a set of integrity constraints. A relational database state is a set of relation states such that every relational database state satisfies the integrity constraints specified on relational database schema.

In this context the following points merit a special consideration :

(a) A particular attribute, which stands for the same real word concept, might appear in more than one relation with same or different name. For example, in vouchers relation, the account Number is represented as *debit* and *credit* whereas in accounts relation, it is represented as *Code* (figure 14.19). EmpId appearing in Employees relation is represented in Vouchers as Auth.By and Prep.By.

(b) The particular real world concept appearing more than once in a relation must be represented by different names. For example, in employees relation, employee is represented as subordinate, by using *EmpId* and as superior by using *SuperId*.

(c) The Integrity constraints, specified on database schema, must hold in every database state of that schema.

14.8 Constraints and Database Schemas

There are *four* different *constraints*, which can be specified on relational databases. These are: *domain* constraint; *key* constraint; *entity* integrity constraint; *referential* integrity constraints.

(a) *Domain* : The value of each attribute of a relation must be an indivisible value and drawn out of possible values associated with its domain. The value of an attribute, therefore, must conform to the data type associated with the domain.

(b) *Key Constraints and NULL Values* : Each data record, which corresponds to a tuple of a relation, in a table must be distinct. That means no two tuples (or rows) in a relation (or table) can have the same combination of values for all their data items. This is because that a relation, as set of tuples, has to have all its tuples distinct by definition. Every relation has at least one key by default, which is the combination of all its attributes. This is called super-key by default. Any such super-key, therefore, specifies *uniqueness constraint.* Such a combination, representing super-key, may have redundant attributes, implying thereby that a more useful concept is that of a *key* which has not redundancy. This can be shown diagrammatically as shown in figure 14.22. Therefore, minimal super-key (also called *Key*) is defined as that part of super-key from which any attribute cannot be removed without sacrificing the uniqueness constraint. The value of key attribute can be used to identify each tuple in a relation. A key is determined from the meaning of the attributes. The uniqueness feature of key must continue to hold when new tuple in a relation is added. Sometimes a relation may have more than one key in which case each of such keys is called a *candidate key*. One such key is termed as primary key of relation. *The choice of which candidate key to be primary is generally subjective*

and may depend on circumstances of mini-world. For Example: Both PAN(Permanent Account Number) and EMPID are candidate keys in EMPLOYEES relation because of being unique. But EMPID should be selected in an organisation being native to the organisational environment.

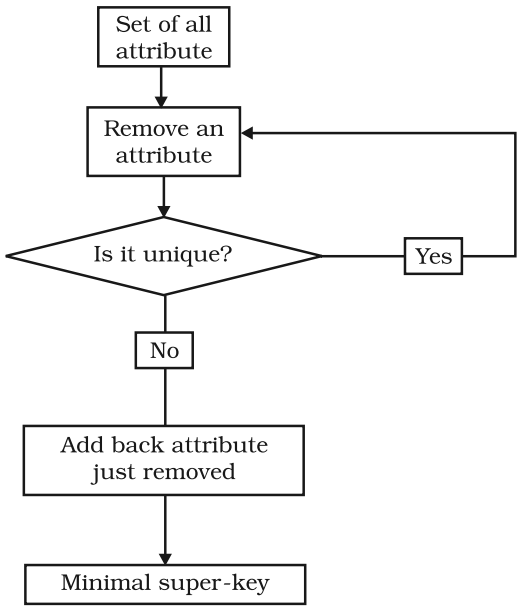


Fig. 14.22 : *Flow chart to reach a minimal super-key*

(c) *Entity integrity constraint* : States that no primary key value can be null because it is used to identify individual tuple in a relation. Null value implies that we cannot identify such tuples or identify these as alike. A failure to distinguish them means they are duplicates.

(d) *Referential integrity constraint* : While key and entity constraints are specified on individual relation, the referential integrity constraint is specified between two or more relations. This constraint is specified to maintain consistency among the tuples of such relations. Accordingly, a tuple in one relation that refers to another relation must refer to an *existing tuple* in that other relation. In referencing *Accounts Type, Accounts* relation uses its attribute *Type,* which acts as foreign key to reference the tuples of relation *Accounts Type* through its primary key *CatId*. The value of Type cannot be null because of total participation of Accounts in classify relationship. Similarly, consider another example in which the relation *Vouchers*

(*Vno, Sno*, Vdate, Debit, Amount, Credit, Amount, Prep_by, Auth_by, Narration) references two other relations as shown in figure 14.19.

First it references, *Accounts* (*Code, Name, Type*). In referencing Accounts, the *Vouchers* relation uses its attributes Debit and Credit, which act as Foreign Keys to reference the tuples of relation *Accounts* through its primary key, *Code*. The values of debit and credit cannot be null because of total participation of vouchers in debit and credit relationship.

Second, it references *Employees* (EmpId, Fname, Minit, Lname, Address, PhoneNo, SuperId). While referencing **Employees**, the **Vouchers** relation makes use of its other attributes Prep.By and Auth.By. These attributes act as foreign keys to reference the tuples of relation Employees through its key attribute EmpId. The values of PrepBy and AuthBy cannot be null because of total participation of vouchers in PrepBy and Authby relationships.

The referential integrity constraint stands violated in above example, if there is a debit or credit code in voucher relation, the tuple for which does not exist in Accounts relation. Similarly, referential integrity fails, if there exists a value corresponding to *Auth.By* or *Prep.By* attribute of vouchers, the tuple for which does not exist in employees relation.

14.9 Operations and Constraint Violations

There are two categories of operations on relational model : *updates* and *retrieval* The three basic types of updates are as given below :

(a) *Insert* : This operation is performed to add a new tuple in a relation. For example, an attempt to add another record of an account with data values corresponding to Code, Name and its Type to Accounts relation shall be made by performing Insert operation. The insert operation is capable of violating any of the four constraints discussed above.

(b) *Delete* : This operation is carried out to remove a tuple from a relation. A particular data record from a table can be removed by performing such a operation. The delete operation can violate only referential integrity, if tuple being removed is referenced by foreign key from other tuples in the database.

(c) *Modify* : The operation aims at causing a change in the values of some attributes in existing tuples. This is useful in modifying existing values of an accounting record in a data table. Usually, this operation does not cause problems provided the modification is directed on neither primary key nor foreign key.

Whenever applied, these operations must enforce integrity constraints specified on relational database schema.

Retrieval operation on Relational Data Model does not cause violation any integrity constraints.

14.10 Designing Relational Database Schema

The rules or guidelines required to design the relational database schema attempt to provide a step-by-step procedure that transforms ER design into Relational Data model design to constitute the desired database. In the context of ER model as shown in design figure14.12, the following specific steps are required to cause its transformation into relational data model :

(i) *Create a relation for every strong entity* : For each strong entity type (which has primary key) in ER schema, a separate relation that includes all the simple attributes of that entity is created. Either choose one of the key attributes of such an entity as the *primary key for this relation*, or choose a set of simple attributes that uniquely identify this entity as the primary key of the relation so created. For example, employee entity is strong because it finds its primary key in *EmpId* which is one of its unique attribute. Therefore, a separate relation for Employee has been created as shown below :

Employee (EmpId, Fname, Minit,Lname,Address, PhoneNo, SuperId)

Similarly, separate relations need be created for the following strong entities whose Primary Key attribute have been underlined.

Accounts (Code, Name, Type)
Vouchers (VNo,vDate, amount, narration)
Accounts Type (CatId, Category)

(ii) *Create a separate relation for each weak entity type* : Every weak entity has an owner entity and an identifying relationship through which such weak entity type is identified. For every weak entity type, a separate relation is created by including its attributes. The primary key of this new relation is the combination of its unique attribute(s) for a particular tuple of the owner relation along with primary key attribute of such owner relation. Furthermore, the primary key of owner entity is included as foreign key in such a relation key of owner entity and the partial key of weak entity. For example, Support Entity, with Vouchers as its owner Entity, does not have a primary key of its own. It has partial key which is the Sno assigned to each document. Therefore, the Primary key of Vouchers, Vno along with Sno is designed as composite key for support entity and the relation so formed is shown below as :

Support (vNo,Sno, dName,sDate)

(iii) *Identify entity types participating in binary 1:N relationship type* : Identify the first relation on n-side of relationship and second on 1-side of such relationship. The primary key of second relation should be included in first relation as its foreign key. For Example, An employee can authorize a number of vouchers. It implies that *Vouchers* entity participates in *Auth.By*

relationship on n-side while *Employees* entity participates in same relationship on 1-side. Therefore, the vouchers relation as already formed above in step 1, must also include as foreign key the primary key of Employees**,** which is *EmpId***.** Similarly, we can deal with *Prep.By* relationship in which Employees and Vouchers again participate in binary 1:N relationship. The end result of mapping both these relationships is to include twice the *EmpId*, but in different roles. Since a relation cannot have same name (here *EmpId* twice to mean *AuthBy* and *PrepBy*), we use their role names as attributes in *Vouchers* relation as foreign keys to reference *Employees* relation.

Accordingly, the modified *Vouchers* relation appears as given below:

Vouchers (VNo, vDate, Amount, Narration, Auth.By, Prep.By)

Similarly, there exist two relationships between the relations Vouchers and Accounts. The relation Vouchers as modified above shall further include as foreign key the primary key of Accounts relation, which is code. This code is to be included twice. One to represent debit and another to represent credit relationship. Since a relation cannot have same name (here *Code* is being included twice to mean *Debit* and *Credit*), we use their role names as attributes in *Vouchers* relation as foreign keys to reference *Accounts* relation. The modified vouchers relation shall appear as follows:

Vouchers (Vno,Vdate, Debit, Credit, Amount, Narration, AuthBy, Prep.By)

(iv) *Identify entity types participating in binary M:N relationship type* : For each binary M:N relationship type, create a new relation to represent such relationship. This new relation should include as foreign keys, the primary keys of the relations that represent the participating entity types. For example, consider the following entities and relationships in the context of credit voucher shown in figure 14.23, which has one debit with multiple credit accounts :

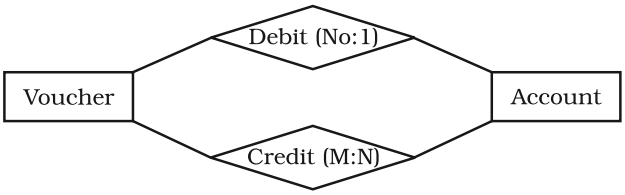


Fig. 14.23 : *ER Diagram showing relationships between vouchers and accounts in the context of credit vouchers, with one debit and several credit entries*

In this case, relationship Credit has cardinality ratio of M:N between Vouchers and Accounts(many vouchers are related to many accounts), While relationship Debit has cardinality ratio of N:1 (many vouchers refer to one account). Further Credit relationship has Sno, amount and narration has its attributes. Accordingly, we create a new relation as follows :

Credit (vNo, Sno, Code, Amount, Narration)

In above relation credit Code is included as foreign key to represent primary key of accounts relation, Vno is included as foreign key to represent primary key of relation vouchers. (Vno,Code) constitute the primary key of this new relation credit. By analogy, we can arrive at the following relation for Debit voucher:

Debit (vNo, Sno, Code, Amount, Narration)

Finally, the following relations have been formed to constitute the relational data model for our example reality.

Employee (EmpId, Fname, Minit,Lname,Address, PhoneNo, SuperId**)**
Accounts (Code, Name, Type**)**
Vouchers (VNo,Vdate, debit, credit, amount, narration, AuthBy, PrepBy**)**
AccountsType (CatType, Category)
Support (VNo,Sno,Dname,Sdate**)**

If we adopt the additional semantics the vouchers relation shall appear in two different schemas :

Situation A : The schema given below is compatible with Debit voucher as shown if figure 14.3.

Vouchers (vNo,vDate, Credit, Auth.By, Prep.By**)**
Debit (vNo, Sno, Code, Amount, Narration)

Situation B : The schema given below is compatible with Credit voucher as shown if figure 14.2.

Vouchers (vNo,vDate, debit, AuthBy, PrepBy**)**
Credit (vNo, Sno, Code, Amount, Narration)

A generalised Schema for the two schemas shall be

Vouchers (vNo,vDate,Vtype, AccCode, vType, AuthBy, PrepBy**)**
Details (vno, Sno, Code, Amount, Narration)

Where in another attribute vType has been introduced to indicate whether this generalised schema applies to Situation A(vType=0) or Situation B(vType=1). Debit and Credit attribute of vouchers relation have been renamed as AccCode to mean Debit and Credit, depending on the value of Vtype. Debit and Credit relations have been generalised into Details because both shared a set of common attributes.

14.11 llustrating the Database Structure for Example Realities

DBMS software is used to implement the data model by creating several tables, setting their interrelationships and imposing constraints as may be set out in database design. After, the design is implemented, it must also allow for retrieval of data and information. This is achieved by querying the database, for which purpose, SQL statements are put to use. These retrieval requests result in emergence of new virtual tables that may be formed out of one or more of existing tables. A clear understanding of these SQL statements is a first step towards the theoretical foundations for computerised reporting. This is because a report is an organised set of information, which is extracted on the basis of these retrieval requests. For a practical understanding of these operations, consider the following Models, herein referred to as Model-I and Model-II. Each of these models, which consist of a set of relations (or tables) and the integrity constraints, constitutes the database design for accounting.

Model-I : This is based on initial conceptual design of example reality shown in Figure: 14.11

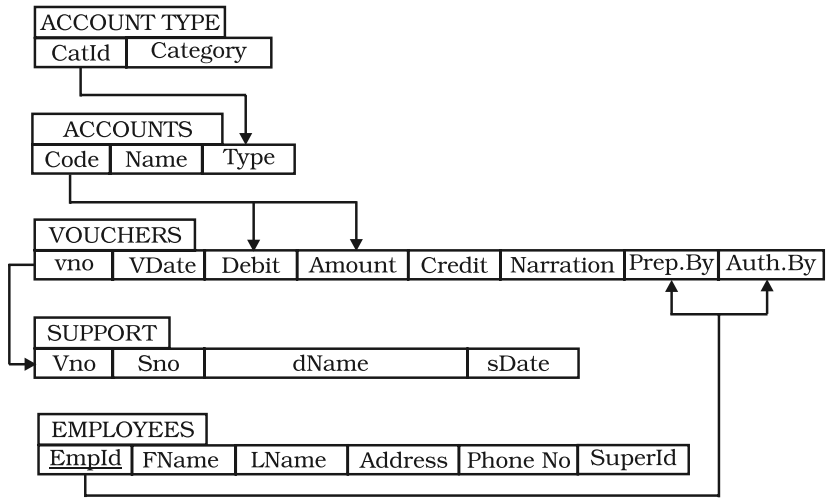


Fig. 14.24 : *Schema diagram for the accounting system relational database schema*

Model-II : The set relations given below are based on modified example reality that uses Credit and Debit vouchers shown in figures 14.2 and 14.3.

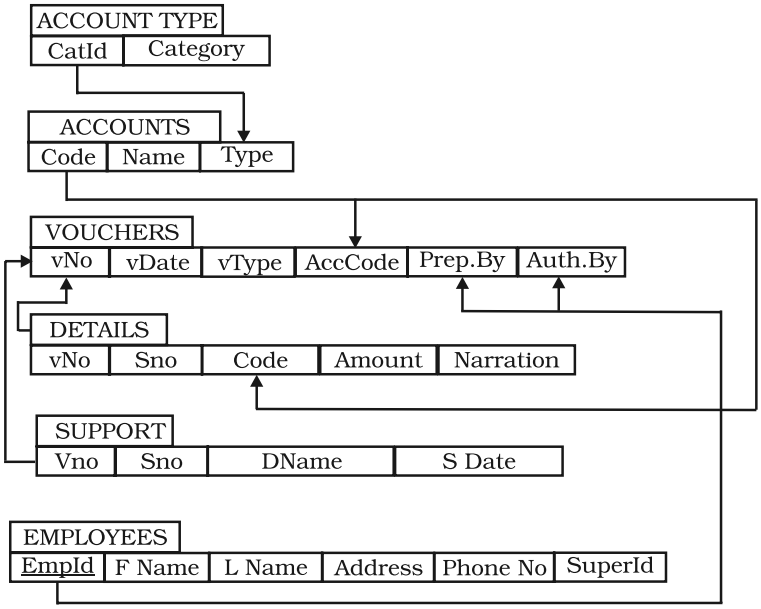


Fig. 14.25 : *Schema diagram for the accounting system relational database Schema*

Illustration No 1

Mr. Philips commenced business with cash and for that purpose opened a bank account on April, 1 2005. His transactions for the month are as given below :

Date	*Transactions*	*Amount Rs .*
2005		
Apr. 01	Commenced business with cash	5,00,000
Apr. 01	Cash deposited Into bank	4,00,000
Apr. 02	Goods purchased and payment made by Cheque No. 765421	1,50,000
	Cheque No. 765422 issued to M/s Nahar Transports for carriage	3,000
Apr. 02	Rent for the month April, 2001 paid by Cheque No. 765423	9,000
Apr. 03	Goods purchased for cash from M/s R.S. & Sons	50,000
	Paid for carriage to M/s Saini Transports	2,000
Apr. 04	Goods sold to Kemp & Co.	1,75,000
Apr. 05	Goods purchased from M/s Jayram Bros.	2,50,000
Apr. 06	Sold goods for cash to M/s Kumbley & Co.	45,000
Apr. 08	Paid for adverisement by Cheque No. 765424 to M/s ABN Cables	2,500

Apr. 09	Received a bill of exchange from Kemp & Co.payable after 3 months	1,75,000
Apr. 10	Bill of exchange received from Kemp & Co. discounted for	1,71,500
Apr. 12	Goods returned to Jayram Bros. being defective	15,000
Apr. 15	Advance cash payment to salesman for marketing tour	10,000
Apr. 17	Paid for insurance of godown Cheque No. 765425	5,500
Apr. 18	Paid for fuel, power and electricity	1,000
Apr. 18	Salary paid in advance to bimal	10,000
Apr. 19	Accepted a bill of exchange payable after four months in favour of Jay Ram Bros.	2,35,000
Apr. 21	Returns from M/s Kumbley & Co., settled by Cheque No. 765427	5,000
Apr. 23	Cash withdrawn by proprietor for household expenses	20,000
Apr. 25	Advance to salesman adjusted for cash after recording expenses :	
	Entertainment	4,500
	Travelling	2,200
	Boarding and Lodging	3,500
Apr. 27	Goods taken from stock for personal use	5,000
Apr. 28	Furniture purchase from M/s S.N. Furnitures by Cheque No. 765428	45,000
Apr. 29	A part of existing stock set a side for usage as office furniture	35,000
Apr. 30	Salary for the month paid by Cheques	
	Cheque No. 765429 to Aditya	9,000
	Cheque No. 765430 to Bimal (one-fourth of advance adjusted)	5,500
	Cheque No. 765431 to Smith	6,000
	Cheque No. 765432 to Sunil	5,000
Apr. 30	Payment of telephone bill by Cheque No. 765433	1,500
Apr. 30	Paid for wages by cash	7,000

The database state pertaining to Accounts and Employees table is as given below :

Accounts

Code	*Name*	*Type*
110001	Capital Account	4
221019	Jain & Co.	4
221020	Jayram Bros.	4
222001	Bill Payables	4
411001	Furniture Account	3
411002	Office Fittings	3
412002	Plant and Machinery Account	3

621001	Kemp & Co. 3	
621002	Kumble & Sons	1
631001	Cash account	3
632001	Bank account	3
641001	Salary in advance account	3
641002	Advance to salesman	3
642001	Bills receivable	3
651001	Drawings	4
711001	Purchases	1
711002	Purchases returns	1
711003	Carriage inwards	1
711004	Fuel, power and electricity	1
711011	Wages	1
712001	General expenses	1
712002	Rent account	1
712003	Salaries account	1
712004	Discount account	1
712005	Adverisement	1
712006	Entertainment	1
712007	Travelling	1
712008	Boarding and Lodging	1
712009	Communication expenses	1
712010	Insurance	1
811001	Sales account	2
811002	Sales returns	2

Account Type

CatId	*Category*
1	Expenditure
2	Income
3	Assets
4	Liabilities

Employees

EmpId	*Fname*	*Minit*	*LName*	*Address*	*PhoneNo*	*SuperId*
A001	Aditya	K	Bharti			
B001	Bimal	S	Jalan			A001
S001	Smith	K	John			A001
S002	Sunil	K	Sinha			B001

Solution

The solution based on *Model-I* which lends support to Transaction Voucher with one Debit and one Credit as shown in figure 14.19, shall appear as follows :

Vouchers

vNo	*Debit*	*amount Rs.*	*vDate*	*Credit*	*narration*	*AuthBy*	*PrepBy*
			2005				
01	631001	5,00,000	Apr. 01	110001	Commenced business with cash	A001	B001
02	632001	4,00,000	Apr. 01	631001	Deposited into bank	A001	S001
03	711001	1,50,000	Apr. 02	632001	Purchases from R.S & Sons	A001	B001
04	711003	3,000	Apr. 02	632001	Paid to M/s Nahar Transports	A001	B001
05	712002	9,000	Apr. 02	632001	Paid rent for April, 2001	A001	B001
06	711001	50,000	Apr. 03	631001	Goods purchased from R.S. & Sons	A001	S001
07	711003	2,000	Apr. 03	631001	Paid for carriage to M/s Saini Transports	A001	S001
08	621001	1,75,000	Apr, 04	811001	Goods sold	A001	S002
09	711001	2,50,000	Apr. 05	221020	Invoice no. dated :	B001	S002
10	631001	45,000	Apr. 06	811001	Goods sold to M/s Kumbley & Co.	S001	S002
11	712005	2,500	Apr. 08	632001	Paid to M/s ABN Cables	A001	S002
12	642001	1,75,000	Apr. 09	621001	Maturity Date : July 12, 2001	A001	S002
13	711002	15,000	Apr. 10	221020	Goods returned Note No. dated :	A001	S002
14	712004	3,500	Apr. 12	642001	Discount on Bill of exchange from Kemp & Co.	A001	S002
15	641002	10,000	Apr. 12	631001	Advance payment to sales for marketing tour	B001	S001
16	712010	5,500	Apr. 17	632001	Insurance of godown	S001	B001
17	711004	1,000	Apr. 18	631001	Payment for fuel, power and electricity	S001	B001
18	641001	10,000	Apr. 18	631001	Salary paid in advance to Bimal	B001	B001
19	221020	2,35,000	Apr. 19	222001	Settlement by accepting a bill of exchange	B001	S001
20	811002	5,000	Apr. 21	632001	Goods returned by M/s Kumbley & Co.	A001	S001
21	651001	20,000	Apr. 23	631001	Withdrawal by proprietor for household expenses	A001	S001
22	712006	4,500	Apr. 25	641002	Expenses during tour : Support vouchers 1-4	A001	S001

23	712007	2,200	Apr. 25	641002	Expenses during tour : Support vouchers 5-7	A001	S001
24	712008	3,500	Apr. 25	641002	Expenses during tour : Support vouchers 8-11	A001	S001
25	641002	200	Apr. 25	631001	Final settlement of Refer to J.V No : 04/21	A001	S001
26	651001	5,000	Apr. 27	711001	Goods taken for private use	A001	S002
27	411001	45,000	Apr. 28	632001	Furniture purchased from S.N. Furniture	A001	S002
28	411001	35,000	Apr. 29	711001	Goods purchased for trading put to office use	A001	S002
29	712001	9,000	Apr. 30	632001	Salary to Aditya-Apr,2001	A001	S001
30	712001	5,500	Apr. 30	632001	Salary to Bimal-April, 2001 after adjustment	A001	S001
31	712001	6,000	Apr. 30	632001	Salary to Smith-April 2001	A001	S001
32	712001	5,000	Apr. 30	632001	Salary to Sunil-April, 2001	A001	S001
33	712009	1,500	Apr. 30	632001	Telephone bill	A001	B001
34	711011	7,000	Apr. 30	631001	Payment of Wages	A001	S001

Shortcomings

The above solution, being based on transaction voucher with one debit and one credit in a transaction requires multiple vouchers for one real transaction. For example, a transaction dated April 30, 2005 "Salary for the month paid by cheque" requires four vouchers 29 to 32. One transaction should be recorded possibly through one voucher only.

Solution

The solution based on *Model-II* which lends support to Debit Voucher (with Multiple Debits and one Credit) and Credit voucher (with one Debit and multiple Credits) as shown in Figure: 14.2 and figure 14.3 shall appear as follows :

Vouchers

Vno	*Vdate*	*Acc_code*	*Vtype*	*PrepBy*	*AuthBy*
	2005				
01	Apr. 01	631001	1	B001	A001
02	Apr. 01	632001	1	S001	A001
03	Apr. 02	632001	0	B001	A001
04	Apr. 02	632001	0	B001	A001
05	Apr. 03	631001	0	S001	A001
06	Apr. 04	811001	0	S002	A001
07	Apr. 05	221020	0	S002	B001

08	Apr. 06	631001	1	S002	S001
09	Apr. 08	632001	0	S002	A001
10	Apr. 09	621001	0	S002	A001
11	Apr. 10	632001	1	S002	A001
12	Apr. 10	221020	0	S002	A001
13	Apr. 12	642001	0	S002	A001
14	Apr. 12	631001	0	S001	B001
15	Apr. 17	632001	0	B001	S001
16	Apr. 18	631001	0	B001	S001
17	Apr. 18	631001	0	B001	B001
18	Apr. 19	222001	0	S001	B001
19	Apr. 21	632001	0	S001	A001
20	Apr. 23	631001	0	S001	A001
21	Apr. 25	641002	0	S001	A001
22	Apr. 25	631001	0	S001	A001
23	Apr. 27	711001	0	S002	A001
24	Apr. 28	632001	0	S002	A001
25	Apr. 29	711001	0	S002	A001
26	Apr. 30	632001	0	S001	A001
27	Apr. 30	632001	0	B001	A001
28	Apr. 30	631001	0	S001	A001

Details

Vno	*Sno*	*Code*	*Amount*	*Narration*
01	1	110001	5,00,000	Commenced business with cash
02	1	631001	4,00,000	Deposited into bank
03	1	711001	1,50,000	Purchases from R.S & Sons
03	2	711003	3,000	Paid to M/s Nahar Transports
04	1	712002	9,000	Paid rent for April, 2001
05	1	711001	50,000	Goods purchased from R.S. & Sons
05	2	711003	2,000	Paid for carriage to M/s Saini Transports
06	1	621001	1,75,000	Goods sold
07	1	711001	2,50,000	Invoice No. dated:
08	1	811001	45,000	Goods sold to M/s Kumbley & Co.
09	1	712005	2,500	Paid to M/s ABN cables
10	1	642001	1,75,000	Maturity date July 12, 2001
12	1	711002	15,000	Goods returned Note No. dated.
13	1	712004	3,500	Discount on bill of exchange from Kemp & Co.
14	1	641002	10,000	Advance payment to sales for marketing tour
15	1	712010	5,500	Insurance of godown
16	1	711004	1,000	Payment for fuel, power and electricity
17	1	641001	10,000	Salary paid in advance to Bimal
18	1	221020	2,35,000	Settlement by accepting a bill of exhange

19	1	811002	5,000	Goods Returned by M/s Kumbley & Co.
20	1	651001	20,000	Withdrawal by proprietor for household expenses
21	1	712006	4,500	Expenses during tour: Support Vouchers 1-4
21	2	712007	2,200	Expenses during tour: Support Vouchers 5-7
21	3	712008	3,500	Expenses during tour: Support Vouchers 8-11
22	1	641002	200	Final settlement of Refer to J.V no. 04/21
23	1	651001	5,000	Goods taken for private use
24	1	411001	45,000	Furniture purchased from S.N. Furniture
25	1	411001	35,000	Goods purchased for trading put to office use
26	1	712001	9,000	Salary to Aditya Apr. 2001
26	2	712001	5,500	Salary to Bimal Apr. 2001after adjustment
26	3	712001	6,000	Salary to Smith Apr. 2001
26	4	712001	5,000	Salary to Sunil Apr. 2001
27	1	712009	1,500	Telephone bill
28	1	711011	7,000	Payment of Wages

Test Your Understanding

A. Indicate against each of the following statements, True or False :

(a) Every relation has at least one super key by default, which is the combination of all its attributes.
(b) Data transformation is called Information.
(c) Referential integrity constraint arises because of relationships between various entities.
(d) The complete absence of WHERE clause in SELECT statement implies that no tuples of a relation shall be selected.
(e) ER model is an example of representational data model.

B. Fill in the blanks, an appropriate word(s)

(a) A ..... does not have key attributes of its own.
(b) The ..... for binary relationship specifies the number of relationship instances that an entity can participate in.
(c) Each simple attribute of an entity type is associated with a value set called ..... of values.
(d) When structure of AIS is based on both human and computer resources, it is called ..... AIS.
(e) An ..... is a collection of all entities of a particular entity type.
(f) A weak entity type always has a ..... constraint with respect to its identifying relationship.
(g) When a relation has more than one attribute with unique values, each such attribute is called .....

After appreciating the way accounting data is presented in above database models, let us understand as to how the *queries* on such databases are expressed as relational operations.

14.12 Interacting with Databases

One of the major reasons for the success of commercial databases is the SQL language support they enjoy. This is because SQL became standard for relational databases. As a result, users have become less concerned about **migrating** their database applications from one database to another database. Another advantage in using standard SQL is that users may write statements in a database application program that can access data stored in two or more relational DBMS without having to change the database sub-language (SQL) provided both the DBMS enjoy the support of a particular SQL standard.

The name SQL stands for Structured Query Language, which was originally called SEQUEL (**S**tructured **E**nglish **QUE**ry **L**anguage), designed and implemented at IBM Research as an interface for experimental relational database system called SYSTEM-R.

Being a comprehensive database language, it has statements for data definition, query and update. Besides this, it has the capability to define user-oriented views of database, specify security and authorisation, define integrity constraints and various other operations. Many computer-programming languages can act as good host languages to incorporate the statements of SQL. In this sense, it can be used as a sub-language in a database-programming context.

Basic Queries in SQL : Data Query Language (DQL), which is a sub-set of SQL is widely used to answer most of the basic queries. The basic set of queries consists of those, for which the SELECT-FROM-WHERE Structure is put to use as described below :

- *SELECT* : This clause is used to specify the data or information that is desired to answer the query.
- *FROM* : This clause is used to specify the source of data for answering the query. It can be a data table, an existing query or both.
- *WHERE* : This clause is meant to specify the conditions that are used to narrow down the choice of data to extract the information desired in **select** clause.

The following queries have been considered using the database design given in Model-I and Model-II. The solution to queries has been given using *MS ACCESS* implementation.

I. *Query to retrieve all columns of data records from a table, subject to a condition* : To project all the attribute values of selected tuples, an asterisk (*) need be specified. This asterisk stands for all the attributes.

(1) To retrieve all columns of voucher records whose voucher has been authorised by an employee whose EmpId is equal to “A001”.

Solution

(*Model-I and Model-II*)

```
SELECT *
FROM      vouchers
WHERE     AuthBy="A001";
```

II. *Query to retrieve selected columns of data records from a table, subject to a condition.*

(2) To Retrieve vouchers with Vno, Vdate, AuthBy columns wherein the vouchers are dated "12/Apr/2005"

Solution

(*Model-I and Model-II*)

```
SELECT    Vno, Vdate, AuthBy
FROM      vouchers
WHERE     Vdate = #04/12/2005#;
```

(3) To retrieve vouchers with Vno, Vdate, Auth_by columns, which are dated "12/Apr/2005". The columns of records retrieved by the query are to be renamed as Voucher, Date and Employee

Solution

(*Model-I and Model-II*)

```
SELECT    Vno As Voucher, Vdate As Date, Prep_by As Employee
FROM      vouchers
WHERE     Vdate = # 04/12/2005#;
```

III. *Unspecified WHERE Clause* : Absence of WHERE clause in SELECT statement implies that the tuples from a relation are to be selected without applying any condition. This in turn means that all tuples of a relation specified in FROM clause qualify for being selected for the result of query. Consider the following query with reference to Model-I.

(4) Find out the list of accounts which have been debited

Solution

(*Model-I*)

```
SELECT  DISTINCT Debit As Code
FROM    vouchers;
```

Solution

(Model-II)

```
SELECT      AccCode As Code
FROM        vouchers
WHERE       vType = 0;
UNION
SELECT      Details.Code
FROM        vouchers, Details
WHERE       vType = 1 AND vouchers.vNo = Details.vNo;
```

Save above query as **DebitAccounts,** and thereafter execute another query as given below to get the final results.

```
SELECT DISINCT *
FROM        Debit Accounts ;
```

(5) Find out the list of accounts which have been credited

Solution

(*Model-I*)

```
SELECT  DISTINCT Credit As Code
FROM        vouchers ;
```

Solution

(*Model-II*)

```
SELECT      AccCode As Code
FROM        vouchers
WHERE       Vtype = 1;
UNION
SELECT      Details.Code
FROM        vouchers, Details
WHERE       vType = 0 AND vouchers.vNo = Details.vNo;
```

Save above query as **CreditAccounts,** and thereafter execute another query as given below to get the final results.

```
SELECT DISINCT *
FROM    CreditAccounts;
```

(6) Find out the list of accounts which have been debited as well as credited

Solution

(*Model-I*)

```
SELECT  DISTINCT Debit As Code
FROM        vouchers
WHERE       Debit IN (SELECT Credit As Code
FROM        vouchers);
```

Solution

(*Model-II*)

```
SELECT *
FROM      DebitAccounts
WHERE     Code IN (SELECT *
FROM      CreditAccounts);
```

Save above solution query as **DebitCredit**, both for Model-I and Model-II

(7) Find out the list of accounts which have been debited but not credited

Solution

(*Model-I*)

```
SELECT    DISTINCT Debit As Code
FROM      vouchers
WHERE     Debit NOT IN (SELECT Code
FROM      DebitCredit);
```

Solution

(*Model-II*)

```
SELECT *
FROM      DebitAccounts
WHERE     Code NOT IN (SELECT *
FROM      DebitCredit)
```

(8) Find out the list of accounts which have been credited but not debited

Solution

(Model-I)

```
SELECT DISTINCT Credit As Code
FROM      vouchers
WHERE     Credit NOT IN (SELECT Code
FROM      DebitCredit);
```

Solution

(Model-II)

```
SELECT *
FROM      CreditAccounts
WHERE     Code NOT IN ( SELECT *
FROM      DebitCredit)
```

IV. *Ambiguous Attribute Names and Renaming* (*Aliasing*) : SQL allows the use of homonyms (that is same name for two or more attributes) as long as such attributes are in different relations. If the use of a common attribute with a particular name across the relations prevails, it becomes necessary

to qualify the attribute name with relation name in which it exits. This is achieved by prefixing the relation name to the attribute name and separating the two by a period symbol dot. In Model-II, the attribute Vno, referring to *voucher* number in vouchers relation, also exists in *details* relation. Whenever vouchers and details relations are used in a query, the use of Vno attribute must precede the name of relation or its alias name. For example,

(9) Retrieve a list of accounts and the amounts debited because of cash payments. The Cash Account code begins with "631".

Solution

(*Model-I*)

```
SELECT    Narration, Debit As Code, Amount
FROM      Vouchers
WHERE     Credit LIKE "631*";
```

Solution

(*Model-II*)

```
SELECT    Narration,Acc_code AS Code, Amount
FROM      Vouchers AS V, Details AS D
WHERE     tType=1 AND V.vNo=D.vNo
AND       acc_code like "631*"
UNION
SELECT    Narration,Code, Amount
FROM      Vouchers AS V, Details AS D
WHERE     tType = 0 AND V.vNo = D.vNo
AND code LIKE "631*";
```

(10) To retrieve a detailed list of all accounts, giving their code, Name and category.

Solution

(*Model-I and Model-II*)

```
SELECT Code, Name, Category
FROM  Accounts, AccountType
WHERE CatId = Type
```

(11) To retrieve a detailed list of all account, giving their code, Name and category, which have been debited

Solution

(*Model-I*)

```
SELECT    DISTINCT Debit AS Code, Name, Category
FROM      Vouchers AS V,Accounts AS A, AccountType
WHERE     V.Debit = A.Code AND CatId = type
```

Solution

(*Model-II* by using query solution saved as DebitAccounts in Q.No: 4)
SELECT Code, Name, Category
FROM DebitAccounts **AS** D, Accounts **AS** A, Category
WHERE D.Code = A.Code **AND** Type = CatId

(12) To retrieve Code, Name and Category of Expense accounts which have been debited

Solution

(*Model-I*)

SELECT Debit **AS** Code, Name, Category
FROM Vouchers, Accounts, AccountType
WHERE Debit = Code **AND** Type = CatId
AND Category = "Expenses"

Solution

(*Model-II* by using query solution saved as Debit Accounts in Q.No: 4)

SELECT D.Code, Name, Category
FROM DebitAccounts **AS** D, Accounts **AS** A, AccountType
WHERE D.Code = A.code **AND** Type = CatId
AND Category = "Expenses"

(13) To retrieve Narration and Amount of transactions where Expense head "Carriage Inwards" has been debited.

Solution

(*Model-I*)

SELECT **Narration**, Amount
FROM Vouchers**,** Accounts
WHERE Debit = Code
AND Name **LIKE** "Carriage Inw*"**;**

Solution

(*Model-II* by using query solution saved as DebitAccounts in Q.No: 4)

SELECT Narration, Amount
FROM Details AS T,DebitAccounts **AS** D, Accounts **AS** A
WHERE T.Code = D.Code **AND** D.Code = A.Code
AND Name **LIKE** "Carriage Inw*"

V. *Sub-string Comparisons and Arithmetic Operators and Ordering and use of functions* : SQL allows comparison on sub-strings (that are some parts of a character string). This can be achieved by use of **LIKE** Operator**.** This like operator instead of equal to (=) operator can be used when exact value

of comparison is not known. Partial strings or sub-strings are specified by using * and range specification within rectangular brackets. For Example:

(14) To make a list of accounts pertaining to the assets of the company, given that each of the assets account code begins with "4", following query need be executed:

Solution

(*Model-I and Model-II*)

```
SELECT    Code, Name
FROM      accounts
WHERE     Code like "4*"
```

(15) To make a list of employees whose names start from a to k, following query need be executed :

Solution

(*Model-I and Model-II*)

```
SELECT    Fname & " " & Minit & " " & Lname  As 'Name of Employee'
FROM      Employees
WHERE     Fname like "[a-e]*"
```

VI. Another comparison operator used in SQL is **BETWEEN ....AND ....**operator. This operator facilitates numeric range tests for selection of tuples. For Example:

(16) To retrieve vouchers with amount ranging between 5,000 and 10,000, following query need be formulated.

Solution

(*Model-I*)

```
SELECT    Vno, Amount
FROM      Vouchers
WHERE     Amount BETWEEN 5000 AND 10000 ;
```

Solution

(Model-II)

```
SELECT    Vno, Amount
FROM      Vouchers AS V, Details AS D
WHERE.    V.vno = D.vno AND Amount   BETWEEN 5,000 AND 10,000;
```

VII. Another feature of SQL permits the use of standard arithmetic operators, which can be directly applied to numeric values appearing in a query statement. Consider the following query:

(17) To find various amounts of sales during the month of April, 2005 and the amounts of such sales if the prices of products are allowed to be raised by 16%.

Solution

(*Model-I*)

```
SELECT    Vdate, Credit, Amount, Amount*1.16 AS Expected
FROM      Vouchers, Accounts
WHERE     Credit = Code AND name LIKE "Sales Account*"
```

Solution

(*Model-II*)

```
SELECT    Vdate, D.code, Amount, Amount*1.16 AS Expected
FROM      Vouchers AS V, Details AS D, accounts AS  A
WHERE     V.vNo = D.vNo AND D.code = A.Code AND A.Name LIKE
          "Sales Account*" AND tType = 1
UNION
SELECT    Vdate, V.Acc_code, Amount, Amount*1.16 AS Expected
FROM      Vouchers AS V, Details AS D, accounts AS  A
WHERE     V.vno = D.vno AND V.acc_code = A.code AND A.name LIKE
          "Sales Account*" AND Ttype = 0;
```

VIII. SQL also allows ordering of resultant tuples according to some specified attribute, which may or may not form part of the resultant relation. Consider the following example:

(18) To retrieve list of Accounts in dictionary order of their Names :

Solution

(*Model-I and Model-II*)

```
SELECT  *
FROM Accounts
ORDER BY Name
```

IX. SQL queries allow the use of supported functions within the query itself. List of these functions varies from one implementation to another depending on the specific RDBMS. Consider the following example :

(19) To List details of vouchers released during April, 2005.

Solution

(*Model-I and Model-II*)

```
SELECT  *
FROM vouchers
WHERE Month(vDate) = 4
```

To execute above query, **month()** function is used which accepts within parenthesis the data a parameter and returns the numeric value of one month varying from 1 through 12. In this case the relevant value to be compared for the month of April is 4.

X. *Explicit Sets and NULL in SQL* : Query results can be retrieved even for rows in which value of an attribute is missing. This is achieved by using **NULL** in **Where** clause while specifying the condition. If more than one value is to be compared with an attribute, the value set can be given in Where clause by specifying **IN** operator.

(20) To retrieve Details of Accounts with following Codes: relating to "621001", "632021" and "642002".

Solution

(*Model-I and Model-II*)

```
SELECT *
FROM        Accounts
WHERE       Code IN("621001","632001","642002");
```

(21) To retrieve name of all employees who do not have supervisors.

Solution

(*Model-I and Model-II*)

```
SELECT *
FROM        Employees
WHERE       SuperId = NULL;
```

XI. *Aggregate Functions and Grouping* : The concept of aggregate functions as referred to in relational operations, is implemented by SQL. Five such functions commonly used for aggregate of data items are: **COUNT,SUM, MAX, MIN** and **AVG**. These functions when applied on a set of numeric values, return respectively number of rows, the sum , maximum, minimum and average of these values. The **GROUP BY** clause is used for providing the basis of creating collection of data items on which these functions are to be applied. Consider the following examples.

(22) To find the sum, minimum and maximum of cash payment during April, 2005. The cash account code begins with "631"

Solution

(*Model-I*)

```
SELECT      Debit AS Code, SUM(Amount) AS Total,
            MIN(Amount) As Minimum, MAX(Amount) As Maximum
FROM        Vouchers
WHERE       Debit like "631*"
GROUP BY    Debit
```

Solution

(*Model-II*)

SELECT Code, **SUM(**Amount**) AS** Total,
MIN(Amount) As Minimum, **MAX(**Amount**)** As Maximum
FROM Vouchers **AS** V, Details **AS** D
WHERE V.Vno=D.Vno, Ttype=0 and Code Like "631*"
GROUP BY D.Code

Key Terms Introduced in the Chapter

- Database System
- Reality Database
- Accounting Intermedia
- Credit Voucher
- Attributes
- Designing Database for Accounting
- Entity Relationship (ER) Model
- Rational Data Model
- Transaction Voucher
- Debit Voucher
- Interacting with Database

Summary with Reference to Learning Objectives

(1) *Database Concepts*

Reality : It consists of different components of an organisation such as people, facilities and other resources.

Data : It represent data concerning people, places, objects entities, events, etc. and non-financial 14 nature.

Database : It was a shared collection of inter-related data tables, tiles or structures which are designed to most varied information needs of all organisation.

International : Processed data organisation in a form that is suitable for decision-making.

DBMS : A collection of programmes that enable users to create and maintain a database.

(2) *Database System Concepts and Architecture*

Data model : Collection of concepts used to describe the structure of a database.

Database Schemes : The description of a database is called its scheme.

Data Base State and Instances : Data in a database at a particular movement is called database state.

(3) *Entity Relationship (ER) Model*

An important concept of data model mostly used in data base oriented application. The major elements of ER model are entities, Attributes, identities and relationship that are used to express reality for which a data base is to be designed.

(4) *Relation Data Model (RDM)*

It represent the database at collection of tables comprising different volumes. It consists of rows and columns. The table name and column name are used to help in interpreting the meaning of volumes of each row. Each row of table is called a data record.

Questions for Practice

Short Answers

1. State main categories of data models.
2. How are computers useful in processing the accounting data?
3. What do you understand by accounting data? Discuss the stages through which it is finally transformed for being presented as information in financial statements.
4. What do you understand by database. How does it differ from DBMS?
5. What is meant by entity type? How it is different from entity set? Illustrate by giving suitable example from accounting reality.
6. What do you understand by relationship type? How is it different from relationship instance and relationship set?
7. What do you understand by multi-valued attribute? How is it different from complex and composite attribute? Illustrate by giving suitable example.
8. What do you understand by the concept of weak entity used in data modelling? Explain the relevance of owner entity type, partial key and identifying relationship in the context of such modelling.
9. What is a participation role? State the circumstances under which the use of role names becomes necessary in description of relationship types.
10. Define foreign key. How is this concept useful in relational data model? Illustrate with suitable example.
11. What is meant by NULL value? What are the reasons that lead to their occurrence in database relations?
12. Why are duplicate tuples not allowed in a relation?
13. What do you understand union compatibility of relations? For which operations such compatibility is required and why?
14. What is the need for database normalisation?

Long Answers

1. Discuss the basic concepts of Entity Relationship (ER) Model. Illustrate as to how an ER model is diagrammed.
2. What integrity constraints are specified on database schema? Why is each considered important?
3. Discuss the different types of update operations in relation to the integrity constraints which must be satisfied in a relational database model.
4. Discuss the steps you would take to transform an ER Model into various relations of Relational Data Model. Give suitable examples.

Project Work

(i) Consider the following reality in a business enterprise, which is engaged in trading activity.

- It buys and sells a given number of items each of which is uniquely identifiable. Each unit of item is expressed in numbers or Kilograms.
- It procures its supplies from a given number of suppliers who can supply any number of items at a time. Each transaction is on credit for a particular period of time expressed in days.
- It sells various items to its customers on credit for a definite period of time expressed in days.
- Each purchase is made through a regular invoice, which has its distinct number for the supplier. It is duly dated, mentions the items being transacted, their quantities and prices and total amount of invoice.
- Design an ER schema for a database application for purchase and sales accounting and also show as to how it shall be transformed into various relations of a relational data model.

(ii) Following transactions of M/s Soumya Enterprises are given to you for the period ending March, 31 2002.

March 05	Additional capital brought in cash by proprietor, Rs.5,00,000, out of which deposited into a bank account Rs.4,50,000
02	Received Cheque for Rs.56,000 from K & Co. on account
08	Issued Cheque for Rs.75,000 in favour of Jain & Sons
10	Payment of rent for the month Rs.15,000
12	Goods purchased Rs.34,000 by Cash
16	Goods sold to R & Co Rs.45,000
20	Purchased furniture for office use Rs.25,000
24	Paid fire insurance premium by Cheque Rs. 12,000
28	Paid cash to Jayram Bros. Rs.29,000 in full settlement of their account standing at Rs.29,500
30	Payment of salary to staff Rs.20,000

All these transactions have been stored in database tables as shown below under (Model-I of database design). Data in Accounts table appears as follows:

Accounts

Code	*Name*
110001	Capital Account
221019	Jain & Sons
411001	Furniture Account
411002	Fixtures & Fittings Account
621001	K & Co
631001	Cash Account
632001	Bank Account
641001	Salary in Advance Account
711001	Cartage Account
711002	Salaries Account
711003	Rent Account
711005	Insurance Premium
711006	Discount Account
811001	Sales Account

Show how will these transactions appear as accounting data in following vouchers table.

VOUCHERS					
VNo	VDate	Debit	Amount	Credit	Narration

Vno : Identity of a transaction stored through a voucher.
Vdate : to date of transaction
Debit : to code of account being debited
Amount : Amount of transaction
Credit : Code of account being credited
Narration : Narration of transaction.

(iii) M/s Soumya Exports set up a garments export business on March,1 2002. Their transactions for the month ending March, 31 2002 are given below :

March 01	Capital brought in cash by proprietor, Rs.5,00,000, out of which deposited into a bank account Rs.4,50,000
03	Received Cheque for Rs.86,000 from Kailash Nath & Co. as advance account
04	Issued Cheque for Rs.85,000 to Jackson Bros. as advance for supplies
11	Payment of rent for the month Rs.18,000
14	Purchased Computer system for office use Rs.53,000, payment for which made by Cheque
14	Goods purchased Rs.1,30,000 , payment made by Cheque.
16	Goods purchased from Jackson and Bros. for Rs.97,500
19	Goods sold to Rajeshwar & Sons Rs.45,000
22	Purchased Furniture for office use Rs.25,000
25	Paid fire insurance premium by Cheque Rs. 12,000
29	Paid Cash To Jackson Bros. Rs.12,000 in full settlement of their outstanding balance of Rs.12,500
30	Payment of salary to staff Rs.20,000

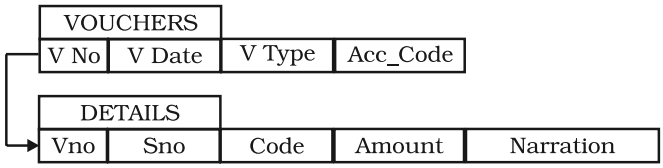
All these transactions have been stored in database tables as shown below under (Model-I of database design). Data in Accounts table appears as follows:

Accounts

Code	*Name*
110001	Capital Account
221019	Jackson Bros.
411001	Furniture Account

413001	Office Equipment
621001	Kailash Nath & Co
621002	Rajeshwar & Sons
631001	Cash Account
632001	Bank Account
641001	Salary in Advance Account
711001	Cartage Account
711002	Salaries Account
711003	Rent Account
711005	Insurance Premium
711006	Discount Account
811001	Sales Account

Show how will these transactions appear as accounting data in following accounting data tables.



Vno : Identity of a transaction stored through a voucher
Vdate : date of transaction
Acc_code : code of account being debited or credited
Code : Codes of accounts being credited or debited, depending on value of Vtype(= 0, means codes being debited, 1 means codes being credited)
Sno : Serial number of accounts being debited in debit voucher and those being credited in credit voucher
Vtype : 0 = means debit voucher, 1 = credit voucher
Amount : Amount of transaction
Narration : Narration of transaction

(iv) Write relational operation expressions and relevant SQL statements for following queries using Database Design Model-I and Model-II :

(a) Retrieve the voucher details and type of voucher authorised by a particular employee.
(b) Retrieve every bank payment voucher details, account name, amount. You are given that bank account code ="632001".
(c) Find details of cash vouchers pertaining to an expense account whose account code = "711003". You are given that cash account code="631001".
(d) Make a list of accounts and amount with respect to which a voucher has been either prepared or authorised by a particular employee.
(e) Retrieve details of vouchers without support documents.

(f) List details of documents with at least one support document.
(g) Find all vouchers with total amounts raised during a particular month.
(h) Retrieve all vouchers prepared by an employee whose First name is "Smith".

(iv) Write relational operation expressions and relevant SQL statements for following queries using Database Design Model-I and Model-II.
(a) Retrieve all vouchers pertaining to a particular account with amounts ranging between Rs. 10,000 to Rs. 20,000.
(b) Retrieve details of each voucher whose support document has the same date as that of the voucher itself.
(c) Retrieve details of voucher authorised by employees who do not have supervisors.
(d) Find sum of cash payments, maximum payments, minimum payments and average.
(e) Find sum of cash payment, maximum and minimum amount with respect to a particular account Code.
(f) Retrieve every bank payment voucher details, account name, amount pertaining to a particular period ranging from Date1 to Date 2.
(g) Find details of cash vouchers pertaining to a particular expense account.
(h) Make a list of accounts and amount with respect to which a voucher has been either prepared or authorised by a particular employee.
(i) Find all vouchers with total amounts raised during a particular month.
(j) Retrieve all vouchers prepared by an employee whose last name is Dev.
(k) Retrieve details of each voucher whose support document has the same date as that of the voucher itself.

Checklist to Test Your Understanding

A. (a) T (b) T (c) T (d) F (e) F

B. (a) Weak entity
(b) Computer based
(c) Timeware
(d) Liveware
(e) Total participation
(f) Multi-valued
(g) Full functional

Accounting System Using Database Management System

15

LEARNING OBJECTIVES

After studying this chapter, you will be able to :

- *identify the resources of MS ACCESS as DBMS;*
- *create data tables described in a database design and set relationship among these tables;*
- *explain the ACCESS basics and procedures to create forms using ACCESS;*
- *describe and create voucher forms in consonance with different database designs;*
- *identify information requirement of reports for querying databases;*
- *formulate and implement queries for retrieving data and information for presentation in accounting reports ; and*
- *implement the process in ACCESS for generating accounting reports by using accounting information queries.*

In chapter 14, you have learnt about the fundamentals of creating a database design in the context of accounting system. This chapter deals with the basics of MS Access for implementing the databases and specifically deals with implementation of accounting databases, the design of which has been shown, described and discussed in chapter 14 as Model-I and Model-II. The accounting database design has been discussed below in terms of its implementation modalities in the context of MS Access.

15.1 MS Access and its Components

It is one of the popularly used Database Management System (DBMS) to create, store and manage database. It is also popularly called ACCESS.

Every component that is created using Access is an object and several such similar objects constitute a class. Access is functionally available with the following seven-object classes. Each of these object classes is capable of creating their respective object replicas.

- *Tables* : This object class allows a database designer to create the data tables with their respective fieldnames, data types and properties.
- *Queries* : This object class is meant to create the SQL compatible query statement with or without the help of Graphic User Interface (GUI) to define tables, store data and retrieve both data and information.

- *Forms* : This object class allows the designer to create an appropriate user interface to formally interact with the back end database, defined by the tables and queries.
- *Reports*: This object class is used to create various reports, the source of information content of which is based on tables, queries or both. Such reports are designed in Access according to the requirement of end-user.
- *Pages* : This object class is meant to create Data Access Pages, which can be posted on a Web site of an organisation using Internet or sent via e-mail to someone of the organisation's network.
- *Macros* : In macro programming, the objects using individual instructions called macro-oriented actions are manipulated. A Macro is a list of macro-oriented actions that run as a unit. Access provides for such Macro programming.

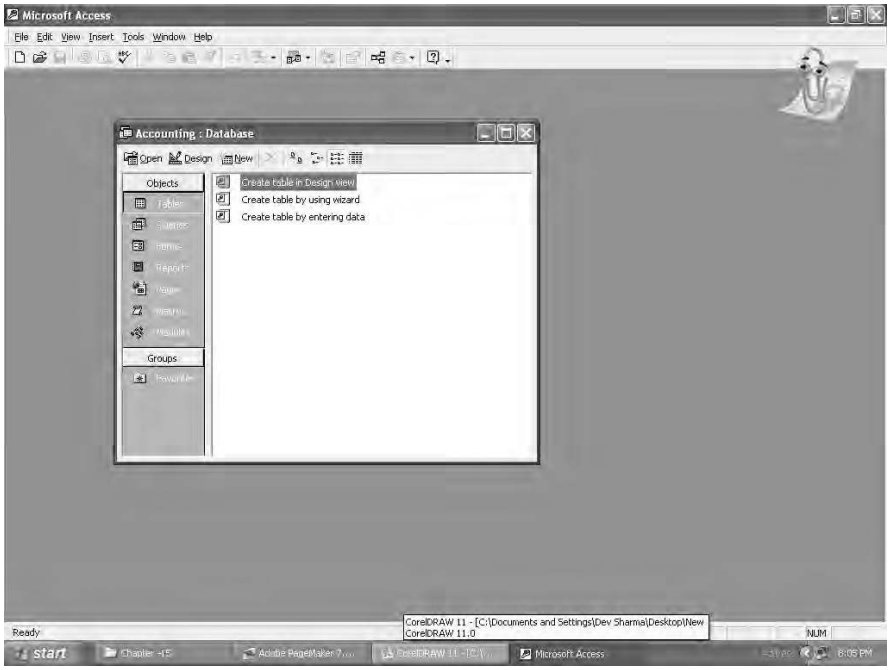


Fig. 15.1 : *An example of database window to work in Access*

- *Modules* : These are the foundations of any application and allow the designer to create a set of programming instructions, called functions or sub-routines that can be used throughout the application.

The functions return a value while subroutines do not return any value. Access provides for creating such modules.

Each of these object classes is contained in the named database file of Access with ***MDB*** extension. Whenever this file is opened, a database window, as shown on next page, opens with all the above object classes available on the left hand side. As and when the specific objects are created or designed, they get listed on right hand side of this window against each of these object classes.

Box 1
Capabilities of MS Access

Access has certain capabilities, which bring it closer to an ideal Database Management System. These capabilities are :

- Storing the data in an organised manner.
- Enforcing data integrity constraints.
- Representing complex relationship among data.
- Providing for persistent storage of database objects.
- Restricting unauthorised access to database.
- Allowing fast retrieval of data with or without processing by using SQL.
- Flexibility to create multiple user interfaces.
- Providing for data sharing and multi-user transaction processing.
- Supporting multiple views of data and information.

15.1.1 Access Basics for Creating a Database

When a new database is created from the scratch, there is complete control over the database objects, their properties and the relationships. In order to create a new database without the help of database ***wizard*** (that is an automated process in Access), the following steps are required :

(i) Open Access Window to choose blank Access database and click OK button.

(ii) Access responds by displaying File New Database dialog box, which prompts the designer to enter a file name and a location for the database. This must be followed by clicking ***Create*** button.

(iii) If the task pane is not open, choose ***File*** from menu bar and click at ***new*** to open the task pane to create a new database.

15.1.2 Creating of Tables in Access

The creation of tables in Access requires the following steps and understanding of the components of ***table*** object.

Click at ***Tables*** object of Access, followed by double click at create ***table by design view***. This results in providing a table window, the upper part of which has three columns: Field Name, Data Type and Description. It is meant to define the schema of a table being created. Each of its rows corresponds to a column of the table being created. Two primary properties of the column of a table are its field name and data type.

(a) *Field name* : refers to column name of the table being created. The name of the column should be a string of contiguous characters. The Field name is meant to define the name of column to be created, followed by data type of such column. The designer can optionally provide description of the column also. Once the data type is defined, the designer can further specify the properties of each column in the lower part of the Table window.

(b) *Data Types* : Access supports different data types, the details of which are as given below :

- *Text* : It is used for a string of characters: words or numbers that are not to be used in any arithmetic calculations. The maximum length for a text field is 255 characters. It is the default data type because of being used most frequently.
- *Memo* : It is used for storing comments and is capable of accommodating 65,536 characters. But a field with this data type is not amenable to sorting or filtering of data records.
- *Number* : It is meant to store numbers, which could be integers (-32768 to 32767), long integers (–2,147,483,648 to 2,147,483,647), bytes (0 – 255), single (to store values with decimal point up to a certain limit), double (to store values in decimal point with greater magnitude and more precision) or decimal types.
- *Date/Time* : It is used to store dates, times or a combination of both.
- *Currency* : It is used for storing numbers in terms of Dollars, Rupees or other Currencies.
- *AutoNumber* : It is a numeric data automatically entered by Access. It is of particular importance in a situation where none of the fields individually or a set of fields as a combination in a table is unique.
- *Yes/No* : It is to declare a logical field which may have only one of the two opposite values alternatively given as: Yes or No, On or Off, True or False.
- *OLE Object* : OLE stands for Object Linking and Embedding. It refers to an object that could be a photograph, bar code image or another document created in another software application.
- *Hyperlink* : This data type is meant to store a Universal Resource Locator (URL) and e-mail addresses.

(c) *Properties* : Once the data type of a column is specified, Access allows the designer to define the properties of each column. These properties are of two types General and Look up.

(i) *General* : In the context of text data type the general properties are :
- *Field Size* : This property, in case of text fields, refers to the maximum number of characters allowed in the column. The same property, in case of numbers, refers to the type of numbers being stored as per requirements.
- *Format* : It is meant to indicate as to how the field's contents are displayed. There are standard types of formats to choose from.
- *Decimal places property* : It applies to single, double or decimal types of numbers.
- *Input mask* : Formats for data entry that include placeholders and punctuations are called input masks. It works only for text and date type of fields. It is of particular importance when the accounting codes being used in the system are formatted with hyphens.
- *Caption* : It is a label used for the field in datasheet view and on the Forms and reports. If the caption property is set to blank, the field name becomes the default caption and is used to label the field.
- *Default Value* : It is used for specifying a value for new entries of data records. While entering the data item, the operator can always over write the default value. The default value should be the most frequently entered value in the field.
- *Validation Rule and Text* : Validation means checking of data to eliminate incorrect entries. Validation criteria can be specified for this property. If the data so entered does not satisfy the validation criteria, the validation text gets displayed.
- *Required and Indexed* : The Required property must be provided a logical value ***Yes*** or ***No***. When a field's required property is set to ***Yes***, a user must enter data in the field before saving the record. A value of ***No*** implies that the data entry in the field is optional. In other words, a null value is also acceptable to the database. Indexing a field results in speeding up sorting, searching and filtering of records on that field. Primary key field is always indexed. For a single field primary key, Access sets the ***Required*** property to Yes and the Indexed property to Yes (No duplicates) because a primary key by definition must have unique values without null entries.
- *Allow-Zero Length* : This property is available only for text fields. Setting it to Yes/No determines whether a text string with zero length is a valid entry or not.

(ii) *Look up* : The look up feature is used by a field to find its values in another table, query or from a fixed list of values. A list of valid values can be displayed using a list box or combo box. Text box is the default display control of look up. Look up is created in case of a field, which is foreign

key (many side) into primary key (one side) between the tables that have one-to-many relationship. Its other display controls are list control and combo control. When list box or combo box is used as display control in look up, it is important to specify the row source type (that is table, query or list of values or field list). The list of values must be separated by comma. Some additional properties in case of list box or combo box are meant to specify the bound column whose values are copied to this field as references. Number of columns to appear in the list box or combo box is determined by column count property.

- The above steps for defining a column need be repeated for every column to be created for a particular table.
- After defining all the columns of the table, the primary key column of the table can be specified as any of the columns that are expected to have unique data values. This can be achieved by right clicking at the field to be specified as primary key followed by primary key item of right clicked window. If more than one field constitutes a primary key, select first field (of such composite primary key) by pressing and holding Ctrl key and clicking other fields (of the composite primary key) one by one in the same order in which they together constitute the primary key. This must be followed by right click at selected fields to mark the selected fields as primary key.
- Save the table design by clicking at ***File*** item of menu bar followed by click at ***Save*** option. Access responds by providing a generic default name of table. The table name provided by Access may be accepted by clicking at OK or changed by re-typing another name at the input dialog box. This must be followed by clicking OK. The table stands created and appears as listed to the right of table object.
- Every other table, which constitutes part of the database design, may also be created in the same manner as described above.

The foregoing discussion in this chapter is divided into four sections: Creating tables and relationships for accounting databases; Vouchers and forms; information using queries and generating accounting reports.

15.2 Creating Tables and Relationships for Accounting Database

The database designed in of this chapter is to be discussed in the context of database components as detailed above. This is because the implementation of each database design is conditioned by its particular table structure and interrelationships. Such implementation modalities have been discussed in detail for various types of transaction vouchers already described in the preceding chapter.

15.2.1 Database Design for Simple Transaction Vouchers

According to the design shown in figure 14.24 (Model-1) of preceding chapter**,** there are ***five*** data tables: Employees, Accounts, Vouchers, Support and AccountType. For the purpose of implementation, each table is described below in terms of their storage structure, i.e. column names, data types and properties:

(a) AccountType : This table has two columns: CatId and Category.

- *CatId* : This column of the AccountType table is meant to specify the identification value of the category of accounts. Since there are limited number of accounts type and are being expressed as numeric only, the data type of this field can be safely taken as 'Number/byte' because the storage space taken by the data type 'Number/byte' is minimum. This field has been designated as primary key because it has unique values across a set of category records.
- *Category* : This field is meant to store the string of characters to express the category of account such as Expenses, Revenues, Assets and Liabilities. Its data type should be ***Text*** with suggested field size set to 15 characters.

(b) *Accounts* : This table has three columns: Code, Name and Type.

- *Code* : A unique account number or code identifies an account**.** This column is meant to store this code. Its data type is chosen as ***Text*** because it is not to be subjected to any calculations. Its field size is required to have a length of six characters because every account is designed to have six digits at leaf level. Because of uniqueness in values, this field is a good primary key field. The ***Allow Zero Length*** property must be set to ***No. Indexed*** property of this field must be set to ***Yes*** (No duplicates) to imply that the database creates automatically an internal index on this field for fast retrieval of data records and ***No duplicates*** indicates that this index is based on unique values of code.
- *Name* : In a system of accounting, every account has a name. This column is meant to store the name of an account corresponding to the account code by which it is identified. Its data type is declared as ***Text*** because it is a string of characters not required for any calculations. Its field size need be set to 30 characters, which is considered to be long enough to accommodate the name of account.
- *Type* : Every account must belong to one of the accounts type as stored in AccountType table. This field is a foreign key to reference CatId field of AccountType table. Its data type and other properties must be the same as that of CatId field in AccountType table, except that its Index property can be set to YES (Duplicates OK). This is because Type value within accounts table cannot be unique as a number of accounts might belong to a particular AccountType and store a common CatId

as data value in Type field. The relationship between the CatId column of AccountType table and type column of Accounts table must also be defined so as to maintain referential integrity.

(c) *Employees* : This table stores the data pertaining to employees of the organisation and is designed to have following columns :

- *EmpId* : Each employee is identified by a unique data value called EmpId, which in turn gets reflected in employee table as a column to store for each employee record a unique identification value. The data type of this column is text with field size equal to 4. Being a column to store unique values and also because of its capability to identify an employee record, it is designated as primary key field. Its ***Required*** property is set to ***Yes*** and ***Zero length property*** is set to ***No*** with ***Indexed*** property as ***Yes*** (No Duplicates).
- *Fname* : This column refers to the first name of employee and its data type is declared as Text because it is meant to store string of alphabets. Its Field size is set to 10 on the assumption that first name of every employee can be completely accommodated within this field size. The ***Required*** property is set to Yes with ***Zero Length Property*** being No to imply that every employee has a first name and no employee record can be stored unless the first name is also stored.
- *Mname* : Mname column is meant to store the middle name of an employee. It data type is declared as ***text*** with field width equal to 10. The ***Required Property*** can be set to ***No*** and Zero ***Length property*** to ***Yes*** to imply that many employees may not have middle name. Therefore, the storing of value in this field becomes optional.
- *Lname* : Lname column has been included in the table structure to store the Last name of an employee. The data type of this column is Text with field size set to 10. The Required Property can be set to ***No*** and ***Allow Zero Length*** property to Yes for the reason which applies to Mname.
- *PhoneNo* : This column is meant to store the Phone number of the employee and its data type is set to ***Text*** with field size equal to 12. The Required property is set to ***No*** with ***Allow Zero Length*** property set to Yes to imply that null values are permitted for this field because many employees may not have phone numbers.
- *SuperId* : This column in the Employee table structure refers to EmpId of the supervisor or immediate superior of the employee. Its data type is set to Text with field width 4, the same as is for EmpId. Its ***Required*** property is set to ***No*** with ***Allow Zero Length*** property being ***Yes*** to imply that null values are also permitted. This is because the overall boss of the organisation, although an employee, does not have any

boss and therefore a null value in this field is to be allowed to accommodate the situation.

(d) *Vouchers* : This table has been designed to store the transaction data as contained in a voucher. It has nine columns, the details of each are given below :

- *Vno* : This column is meant to store voucher number, which indicates the distinct identity of a transaction. Its data type could be number if numeric digits are assigned to each of the vouchers. However, its data type is normally taken as text because it is amenable to any type of numbering, coding or ordering scheme: numeric, alpha-numeric or formatted reference. Its width may be set to 6 so that first 2 places to the left refer to numeric month of the date and next 4 places to numeric digits giving identity to each of the transactions that have occurred during the month under reference. This column is designed to have distinct values and therefore can be designated as primary key of the table. Accordingly, its value cannot be null and therefore its ***Allow Zero Length*** property must be set to ***No*** with ***Required*** property being ***Yes***. However, its data type needs be taken as number (with Integer), when numeric function(s) such as Dmax() is applied to find maximum values for auto-generating the vouchers.
- *Debit* : This column is meant to store the code corresponding to an account, which has been debited in recording a transaction. Since it references the ***code*** column, which is the primary key of ***Accounts*** table as described above, it is a foreign key column in ***Vouchers*** table. The data type and properties of this column should be the same as that of code column of Accounts table, except that its ***Indexed*** property need be set to ***Yes*** Duplicates OK). The relationship between the code column of accounts table and debit column of Vouchers table must also be defined so as to maintain referential integrity.
- *Amount* : This column is meant to store the amount of transaction and is common to the accounts being debited and credited. Its data type can be Number with field size set to double; format set to standard; decimal places set to 2 and default value set to 0.00. Alternatively, its data type can be chosen as currency type, in that case its format can be either accepted as currency or set to standard with decimal places set to 2.
- *Vdate* : This column of the table stores the date of transaction. Its data type is set to ***Date/Time*** with format set to Medium Date (dd-MMM-yy); Default value set to = Now() to imply current date in Real Time Clock (RTC) of computer system and caption property set to Date.

- *Credit* : This column is meant to store the code corresponding to the account being credited in recording a transaction. Like Debit column, this column too shares the same properties as code column of Accounts table and must also be dealt with in the same manner as Debit column described above.
- *Narration* : This column is meant to store the narration. Its data type can be set to text type with field size set to 100 characters; Required to ***No; Allow Zero Length*** to ***Yes*** and Indexed to ***No***. If the narrations are very large beyond 255 characters, its data type can be set to ***Memo*** so as to accommodate the narrations up to 65,536 characters, almost equal to 64 pages.
- *PrepBy* : This column is meant to store the identity of an employee who has prepared the voucher. EmpId as defined and described in schema of Employees table identifies the employee. The data type of this field and other properties must be identical to that of EmpId, except that its Indexed property must be set to ***No***. This column as per design is expected to refer to EmpId column of ***Employees*** table and therefore must be defined as foreign key. Its relationship with EmpId column of Employees table must also be specified to ensure referential integrity.
- *AuthBy* : This column is meant to store the identity of the employee who has authorised the vouchers. This column is similar to ***PrepBy*** column. Therefore, its data type, properties and relationship with EmpId are the same as those for ***PrepBy*** column.
- *Support* : This table is created to store the details of support documents annexed to a voucher. It is designed to have the following four columns:
  - *vNo* : This column is meant to store the voucher number to which this document is annexed. Its data type should be the same as that of Vno in Vouchers table because this column refers to Vno column of Vouchers table to maintain referential integrity. Its value cannot be null and therefore its ***Allow Zero Length*** property must be set to ***No*** with Required Property being ***Yes***. Since there may be more than one support documents annexed to a voucher, the values stored in this column cannot be unique and therefore this column alone cannot be a primary key field.
  - *sNo* : This column has been included in the table structure to store serial numbers 1,2,3... to correspond to the serial number of documents being annexed. Duplicate values will occur in this field also because the serial number of documents across the vouchers shall be the same. However, both the columns: Svno and Sno together provide a unique value because the documents, for every voucher are serially numbered and therefore unique. Both the

columns together need be declared as Primary key of this table.

- *dName* : This column refers to Document name. Its data type is ***Text*** with field size equal to 30 to mean that within this character limit the document name can be suitable accommodated.
- *sDate* : This column refers to any date reference given in the support document. Its data type is ***Date/Time***. Its format can be declared as Medium Date with Required and ***Indexed*** property set to ***No***.

15.2.2 Modified Design for Implementing Compound Vouchers

There are two tables: VouchersMain and VouchersDetails

(a) *VouchersMain* : This table has been created to store one record for every transaction. The rows of this table refer to those data items of the vouchers, which lie outside the voucher grid. It consists of Vno, AccCode, vdate, PrepBy, AuthBy and Type.

- *AccCode* : This column is meant to store the complementing account code, which in the context of debit voucher is credit account and in the context of credit voucher is a debit account. In debit voucher, the debit accounts are displayed in Debit Accounts Grid and therefore the complementing account is the account to be credited. Similarly, in Credit Voucher, the Credit Accounts Grid displays only the accounts, which are being credited in recording a transaction. Therefore, the complementing debit account need be stored in this column. This column is also the foreign key column because it references the primary key column of Accounts table. Its data type and properties must be the same as that of Code column of Accounts table, except that its Indexed property must be set to ***Yes*** (Duplicates OK) and the domain of its data values is confined to the code values stored in Accounts table.
- *Type* : This column has been created to store a value **0** (for debit voucher) or **1** (for credit voucher). Its data type therefore is set to ***Number*** with field size set to byte. This column is very important and therefore its values must be carefully stored and interpreted in preparing accounting reports. Improper handling of this column may cause the Errors of Principle in accounting. The data types and properties of Vno,Vdate, AuthBy and PrepBy continues to be same as have been defined and discussed in Vouchers table of Simple Vouchers Design. However, Vno column has acquired an added importance because of being referenced by Vno column of VouchersDetail table.

(b) *VouchersDetail* : This table is meant to store those data items of the voucher, which appear in the grid of debit or credit vouchers. However, the Total

amount of voucher is not stored because it is derived data. It consists of Vno, Sno, Code, Amount and Narration as its columns.

- *Vno* : This column is meant to store voucher number of Debit/ Credit record of VouchersMain table to which the Credit/Debit entries of vouchersDetails table are related. Its data type should be the same as that of Vno in VouchersMain table because this column refers to Vno column of vouchersMain table to maintain referential integrity. Its value cannot be null and therefore its ***Allow Zero Length*** property must be set to No with ***Required*** property being ***Yes***. Since there can be more than one debit/credit Entry against each of the credit/debit entry of ***VoucherMain*** table, the values stored in this column cannot be unique and therefore this column alone cannot be a primary key field.
- *Sno* : This column has been included in the table structure to store serial numbers 1,2,3... to correspond to the serial number of debit/credit entries being referred to in the grid of an accounting Voucher: Debit or Credit. Duplicate values will occur in this field also because the serial numbers of entries across the vouchers are bound to be the same. However, both the columns: vno and Sno together provide a unique value because for every voucher the entries are serially numbered and therefore unique. Both the columns together need be declared as primary key of this table.
- *Code* : This column is meant to store the account codes, which in the context of debit voucher are debit accounts and in the context of credit voucher are credit accounts. This column is also the foreign key column because it references the primary key column of ***Accounts*** table. Its data type and properties must be the same as that of Code column of Accounts table, except that its ***Indexed*** property must be set to ***Yes*** (Duplicates OK). The domain of its data values gets confined to the Code values stored in Accounts table. The data type and properties of ***amount*** and ***narration*** column continue to be the same as already described and discussed for Vouchers table.

15.3 Vouchers Using Forms

The scope of this section includes the basics of Access for creating a Form in Access; transforming the voucher designs in terms of Access objects and properties; and also the procedure for creating Forms for vouchers.

15.3.1 Access Basics for Creating Forms

A Form in Access may be designed, developed and used for the following purposes :

- Data Entry: Form is used for entering, editing and displaying data.
- Application flow : Form is used for navigating through an application.
- Custom Dialog Box : It can be used for providing messages to the user or getting parameters from the user for executing a parameter-based query.
- Printing information: It can be used for providing hard copies of data entry information.

This is contrary to the belief that Forms in Access can be used only for data entry. The most common use of a Form in Access is to display and edit existing data and also for adding new data records.

15.3.2 Tool Box and Form Controls

A tool box is a collection of visual objects (or controls) that are placed (or embedded) on the Form to provide some meaning or functionality. The Form is designed by placing several such controls, which have their own functionality and properties.

15.3.3 Properties of Controls

Every form control is a complete object with its independent set of properties, which determine the shape, size, behaviour and functionality of the object. The properties of these objects are divided into three categories: Format, Data and Others. All these properties may not apply to all the controls. Some important properties of these objects are as described below :

(a) *Format Properties* : Some of the important properties are as described as under:
   - *Format* : It determines the manner in which the data in the control is displayed. This property is inherited from its underlying data source. It is set and used in three situations : *one* when the property is not set for the underlying field; *second* when the format setting of the underlying field is to be overridden; *third* when a control, which is not bound to any underlying data field, is to be displayed in a particular manner.
   - *Decimal Places* : This property specifies the number of decimal places up to which the control should display a numeric data. It must be used in conjunction with format property to determine the final appearance of numeric data.
   - *Caption* : The caption property applies to label, command button and toggle buttons. This property is used to specify what printed matter will appear on the face of the control. In the context of label control, the printed matter is made to appear using this caption property.

- *Visible* : This property specifies whether the control embedded on the Form should be visible or hidden when the Form is opened. The property can make a control appear conditionally when required.
- *Layout* Properties (*Left, Top, Width, Height*) : These properties are used to set the position and size of the control.
- *Back Colour and Style*: The back colour property specifies background colour, as opposed to text colour, for the control. This property, when set to transparent, shows the form's background colour through the control. The setting is preferred for an Option group.
- *Special effects*: This property provides the three dimensional effect to a control in its appearance. The options for this property are: Flat, Raised, Sunken, Etched, Shadowed and Chiseled. Each of these effects give a different look to the control.
- *Border Properties*(style, colour, and effect): The Border properties are capable of affecting the style, colour and thickness of the Border of a control. The Border style options are Transparent, Solid, Dashes, Dots, etc. The Border colour property specifies the colour of the Border and it is possible to select from a variety of colours. The Border width property can be set to one of several point sizes. When the Border style of a control is set to transparent, its colour and width properties are ignored.
- *Fore Colour*: This property can be used for assigning a colour of choice to the text being formatted.
- *Font Properties* (Name, Size, Weight, Italics, Underline): These properties are meant to control the appearance of text within a control. These are capable of affecting font, its point size, thickness and also whether the text is italicised or underlined.
- *Text Align* : The text-align property affects the manner in which data is aligned within the control. The available options are: General, Left, Centre, Right and Distribute.
- *Margins* (*Top, Left, Right and Bottom*) : These properties determine how far the text appears from top, left, right and bottom of a control. The margin properties are of particular importance while using Text box for memo field.
- *Line Spacing*: It is used to determine the spacing between the lines of a text with multiple lines. This is useful when a text control is used for displaying and storing data pertaining to Memo fields.
- *Display When*: This property is capable of deciding whether to send the data of a control to a Printer or to a Screen. For example, the labels containing instructions can be displayed on the screen but not on the printer.

- *Scroll Bars*: This property is capable of determining whether scroll bars appear when the data in the control does not fit within its size or not. The options are none or vertical. This property is normally set to vertical for text control to interact with data pertaining to Memo field.

(b) *Data Properties*

- *Control Source* : This property specifies the field from a record source that is associated with particular control. By default, it is the record source that underlies the Form being designed.
- *Input Mask* : The input mask property affects the format used for data entry into the control as opposed to its appearance, which is affected by Format and Decimal places property. The input mask of the field underlying the control is automatically inherited by the control. However, the input mask property of control in the Form is used to further restrict what data is entered into the field.
- *Default Value* : This property determines the value assigned to the field while adding a new data record. It is inherited from the underlying field of record source to which the control is bound. The default value, when set for control, has an overriding effect over the default value set at the underlying field level.
- *Validation* (Rule and Text) : The function performed by Validation Rule and Validation Text for controls is the same as it applies to Fields of database tables, except that the validation is performed at Form level in case of control and database level in case of fields. In case of bound controls, the user cannot enter data into the control, if the validation rules for control and the underlying field are in conflict.
- *Enabled and Locked* : This property is meant to determine whether focus is allowed on the control or not. If it is set to ***No***, the control appears dimmed and mouse action cannot be performed on such control. This property is useful for calculated controls meant only for display of data. Locked property determines whether the data in the control can be modified or not. This property, when set to Yes, deprives a user the facility to edit data, though the focus becomes available. The two properties interact with one another resulting in following behaviour of control :

Locked	Enabled	Effect : The control can
Yes	Yes	get focus ; its data can be copied but not modified
No	Yes	get focus and its data can be modified
Yes	No	not get focus
No	No	not get focus; its data is displayed dimmed

(c) *Other Properties*

- *Name* : This property allows the designer to provide a customised name to a control. The names assigned by the designer should be purpose oriented so that the design structure of the Form becomes self-documenting.
- *Status Bar Text* : This control specifies the text message that is displayed in the status bar when the control acquires the focus.
- *Enter Key Behaviour* : This property is meant to determine whether the use of Enter key adds a new line in the current control or results in moving the cursor to next control. Its setting is useful for Text control bound to Memo field.
- *Allow AutoCorrect* : This property, when set to ***Yes***, enables the auto correction feature to correct automatically common spelling errors and types. It is useful while using Text control for Memo field.
- *Vertical*: This property is meant to determine whether the text in a control appears horizontally or vertically. The default setting is ***No*** to mean the horizontal. When set to Yes, the text within the control is rotated at 90 degrees.
- *Default* : This property applies to command button and specifies whether the control is a default control on the form or not.
- *Tab Stop* : This property indicates whether the Tab key can be used to enter a control or not. It is desirable to set this property to ***No*** for those controls whose values are rarely changed.
- *Tab Index* : This property is used to set the tab order for the control. This property helps in setting the tab order manually as opposed to automatic setting at Form level.
- *Short cut Menu* : This control is capable of attaching a specific menu to a control and a bar/window gets displayed when the user right-clicks at the control.
- *Control Tip Text* : This property is meant to enter text that acts as a tool tip for the control. The tool tip appears automatically when the mouse pointer is placed over the control and left there for a moment.
- *Help Context ID* : This property indicates the Help topic attached to a particular control.

15.3.4 Common Controls in MS Access

Access provides for a number of controls and more can be added using the add-in-manager in Tools of menu bar. There are three types of controls: Bound, unbound and calculated. ***Bound*** controls are used to display and modify data stored in a data table of database. These controls automatically appear in the Form specified in its display control property and inherit many of the properties

assigned to the field to which such controls are bound. ***Unbound*** controls display information to the user or get data from user that is not going to be stored in the database. A ***Calculated*** control is a special type of control, which displays the derived results of an expression or query. The expression may consist of ready-to-use functions that are meant to make computations by using input values. Some commonly used functions have been discussed and described in Appendix given at the end of the chapter. Therefore, the data in calculated control cannot be modified because it is derived data or information. The value of these controls changes automatically as and when the data, to which the expression of the control is bound, changes. Some of the common controls important for designing a Form are discussed below :

(a) *Label* : This control is used to write dark prints on the Form such as Transaction Voucher, Voucher No, S.No, Debit, Credit, Amount, Narration, Authorised By, Prepared By on the left hand side and "Choose the Account to Debited" and "Choose the account to be Credited "on the right hand side of Access voucher Form design of which is shown in Fig 15.4**.** The attached labels are automatically appended to the Form when other controls such as Text boxes, List boxes, Combo boxes, etc. are added because every such added control has to be labeled to inform the user as to what data to enter or edit through the control. The default caption of the label is the caption of the field that underlies the control to which it is bound. If the caption property of the field is kept blank, the label caption uses field name as its caption.

(b) *Text Box* : This control is included in a Form to provide a blank area for entering the data with or without default values. Blank space next to Amount label, for example, is a text box control to receive the value of amount of voucher. Text box, when bound to a particular field of the table, retrieves and displays the data stored in field for a particular row and is capable of modifying and adding data to the table. The unbound text box is used to get the data from the user for its subsequent use in report for providing report criteria.

(c) *List Box* : This control is used for allowing a user to make a limited choice from a given set of values. The domain of its values is predefined and therefore limited. List control may be used next to Debit and Credit labels in a simple transaction voucher, so as to locate the accounts to be debited or credited.

(d) *Combo Box* : This control combines the features of a list box and text box by allowing a user to select an item from a list or enter a value using the keyboard.

(e) *Sub-form* : Many Forms are based on more than one table with One-to-Many relationship. The records of such tables can be displayed by creating

form within a form, with tabular presentation of records. The Form within a Form (also referred to as Main Form) is called SubForm. The Main Form and SubForm have parent-child relationship. The Control used for creating such a child Form is called SubForm/SubReport. Data records appearing in a grid can be stored in database by using SubForm Control. The SubForm whenever created is listed as an independent object like main form in Database Window. However, the SubForm Control in main Form has three properties for creating a link :

- *Source Object* : It contains name of the Form that is being displayed in SubForm control.
- *Link Child Fields* : These are the fields from the Child form that link the this form to the Main form. These are also referred to as Foreign key of related table.
- *Link Master Fields* : These are the fields from the Main Form that link the Child form to the Main Form. These are also referred to as Primary key of primary table. Make sure the Control Wizards tool is selected before adding the SubForm/SubReport control to the Main form.

(f) *Option Groups* : Control, when applied to Option button, allows the designer to select a particular option from out of a set of mutually exclusive options. This option is useful in designing a common Voucher Form for Debit and Credit Voucher for compound transactions.

(g) *Command Button* : It is meant to execute a defined action on the Form. Access provides for six categories of command buttons as described below:

- *Record Navigation* : The record navigation set of command buttons are meant to facilitate pointer movement on data records. At a point of time, only one row of a table, called data record, is accessed. To access other rows, there has to be a pointer for causing record movement.
- *Record Operation* : There are several operations on data records. These are meant to facilitate such operations as add new record, delete record, undo record, save record, duplicate and print record.
- *Form Operation* : These operations are meant to be performed on the entire form as an object. These are Open form, Close form, Print form, Refresh form data and so on.
- *Report Operation* : These operations are related to the report object. Once a report is created, further actions, which can be taken on such report are Mail report, Preview report, Print report and Send report to file. Access provides separate command buttons for each of these actions.
- *Application* : There are five command buttons especially designed for possible operations pertaining to other application programs. ***Run*** application is meant to execute any existing program ; and ***Quit***

application is used to stop the execution of a running application; ***Run*** MS Excel command button is used for calling the MS Excel, spread sheet program which is part of MS Office package. Similarly, a command button to run MS Word results in calling the text processing program of MS Office package; ***Run*** Note Pad command button when executed calls the text writing program provided by the Operating System-Windows.

- *Miscellaneous* : This category include four command buttons: Auto dialer; Run query, Run macro, Print table. Auto dialer button in a form when clicked is capable of dialing a telephone number, provided a modem is attached and configured in the computer system. Run query command button is meant to execute an existing query. Run macro command button is used to execute a specified Macro and Print table command button, when clicked is capable of printing contents of a specified data table from among available tables in database.

In the example of Access Voucher Form shown in Fig 15.4, four command buttons have been embedded. First button when clicked adds a Record while a click action on the second button results in undoing the record. The third command button is meant to delete a record and the fourth button when clicked saves the record to back-end database tables while in this case it is Vouchers table as already described.

(h) *Control Wizard* : If the selected controls (such as List box, combo box or SubForm) when added to the Form do not invoke the automated wizard, the control wizard need be selected by click action before selecting the control which is to be embedded on the Form for design purposes.

15.3.5 Creation of Form

Access provides for creation of a Form either by Design or Wizard. This can be achieved by double clicking at the database file. Immediately the Database Window appears, which is vertically divided into two parts: left and right. The left side displays a list of database objects such as Tables, Queries, Forms, Reports, Pages, Macros and Modules. The right hand side of Database Window shows the various objects created under each of the classes of objects. At the top of Database Window and just below the title bar, there is a menu bar, which consists of three named menu items: Open, Design and New, and five Icons: one to delete an object, second and third to toggle between Large and Small (default) Icons and fourth and fifth to toggle between list (default) and details.

Select Forms Object : This can achieved by a click at Forms listed as object-class. By default, two items appear on the right side of window: “Create Form in design view” and “Create Form by using wizard”.

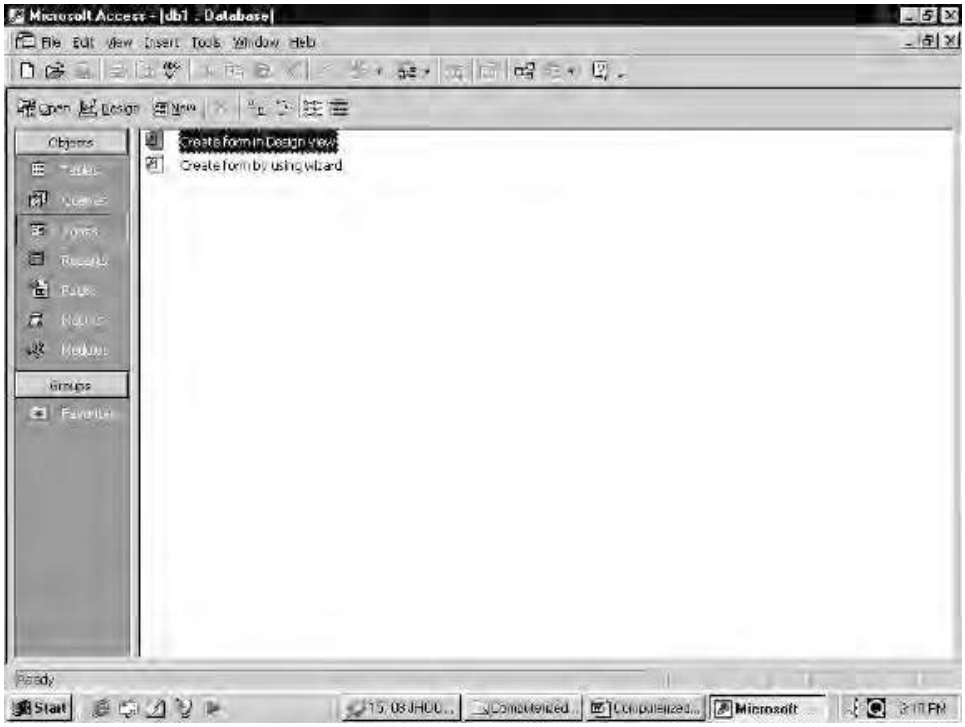


Fig. 15.2 : *Database window showing the methods to create forms*

(a) *Create Form by using wizard* : The following procedure is followed for using the wizard to create a data entry Form :

- Double click at ***Create Form by using wizard***. Immediately there is a window titled, ***Form Wizard*** which allows the designer to choose the data table along with the related available fields to choose from. The designer should choose only those fields, which pertain to the data content of Form being designed. But it must be ensured that every essential field (defined as one with ***Required*** property set to ***Yes*** and ***Allow Zero Length*** property set to ***No***) must be included. In case of voucher, choose all the fields by clicking at **>>** button.
- Click at ***Next*** command button. Form wizard responds by providing six mutually exclusive choices with respect to layout of the Form. One of these choices is exercised by clicking at an option button from a group of six such buttons.

- Click at ***Next*** command button after exercising layout choice. The Form wizard responds by prompting the user to select from a list control one out of the ten options to specify the style of presentation of this Form.
- Click at ***Next*** to move forward. Access responds by asking for the Title of the Form. The designer can provide a useful title, which explains the purpose for which the Form is being created. Further, the designer may specify whether the Form is to be opened for entering data or for modifying the design.
- Finally click at ***Finish*** command button to get the initial design of the Form in run mode, if the option for entering data is exercised. If the option for modify design is exercised, the design of the Form is available along with tool box with various controls to facilitate modification of design.

Modifying Form Design : The Forms created with wizard have limited visual appeal. However, Forms have a design view, just as table do, and Access includes many tools for modifying a Form's design. Some of the common modifications to the Form are listed below :

- Changing Properties of controls
- Re-sizing and moving controls
- Aligning and spacing controls
- Converting (or Morphing) controls
- Conditional formatting of controls
- Re-arranging Tab Order
- Adding New controls
- Deleting existing controls

Each of these modifications has been briefly discussed after describing the procedure for creating a ***Form by Design*** view.

(b) *Create Form by Design view* : Under this method, a data entry Form is created either as a data bound object or as an unbound object. A double click at "Create Form in Design View" provides a ***New Form*** dialog but the Form created in this manner is not bound to any back end database. However, a click at ***New*** to open New Form dialog results in creating the Form, which is bound to database. The use of drop down list in the new Form dialog box to select a table or query serves as the foundation of the Form being created. Fields can be easily added to a Form by using the Field List window, which contains all the fields that are part of the Form's record source. The record source for the Form is the table or query that underlies the Form. Make sure that the Field List window is visible. If it is not, click at the Field List button on the tool bar. Pick up from the field list every field, which is to be displayed in the Form for entering the data. It is important to ensure that every essential field must appear in the Form, if

the Form is being designed to enter records rather than displaying just part of record contents. Select and drag the field from the field list to a place on the Form where it is desired to appear. The location selected becomes the upper left corner of the text box, and the attached label appears to the left of where the text control is dropped. Further, the following steps are taken to develop a data entry Form :

(i) *Click at **New** to open the **New Form** dialog. Two list controls appear in the dialog box* : *one* provides for various options to create a Form such as Design view, Form Wizard, Auto Form; etc. and *another* to "choose the table or query where object's data comes from" (also called record source). From First List control choose Design view(default) by a click.

(ii) Choose a table as the record source because the entire data is stored in the table record by record. Click ***OK*** after the table is selected.

(iii) *Access responds by providing three windows* : *one* for new blank Form, *second* for tool box and *third* for Field list corresponding to the selected record source. The Form object henceforth shall act as a container for other controls to be used in designing Form.

(iv) Select and drag a field from the Field list and place it in the blank Form by drag and drop method. Repeat this process for every field in succession. Alternatively, all the fields can be selected by clicking at every field in the field list while ***Ctrl Key*** is kept ***pressed.*** The selected fields can be dragged and dropped at the Voucher Form.

(v) *Adding a Title* : The Form must be suitably titled for its identity, which should be self-descriptive. To add a title, use tool box by clicking at the label control. While the pointer is moved back into the design area, it changes to a large letter ***A with crosshairs***. Move the pointer into the header area and click where the label is desired to be placed and then type the text of title. Once the text is entered, the focus from the label control can be freed by clicking anywhere in the Form. The label can be reselected by a click, followed by using the formatting tool bar to format the title. Alternatively and in addition to the above, more formatting options can be exercised by right clicking at the label control and clicking at ***Properties*** item of drop down window of right click action.

(vi) *Changing the Properties of Forms and Controls* : Every Access object: Form or Controls is described by its properties. These properties, as already stated above, have been classified into three broad categories: Format, Data and Others. It is not essential to know every available property to work well in designing Forms in Access. But it is always good idea to check up the property values if the object is not behaving the way it is expected to. To view the properties

for an object or control, right click at the control and select the properties. Access responds by providing all the properties listed under category tabs. The property sheet title bar includes names of objects contained in the Form. Once property sheet is opened for one object, it is easy to call for the properties of other objects by selecting the name of object from property sheet title bar. The values of such properties are changed as desired. The Form's property sheet can be opened by double-click at Form selector, which is located at the left most intersection of vertical and horizontal rulers. The property setting on multiple controls can be changed at the same time by selecting multiple objects, in which case only those properties become available for editing which are common to the selected objects. The multiple objects can be selected by keeping the ***Shift Key*** pressed, followed by clicking at desired objects.

(vii) *Moving and Resising controls* : In order to move a control, first select it by a click action, then move the pointer to the edge of the selected control, ensuring that any of the re-sizing handles appearing as bold dot is not pointed at directly. The pointer turns its shape to a small hand. At this stage, hold mouse button pressed and drag the control to its new location. Movement of control beyond the bottom or right edge of the Form, leads to increasing the Form area automatically. Access also allows for combining of select and move step thereby making it easier and more efficient to reposition the control. A control can be re-sized by dragging the re-sizing handles at the corners and sides of the object. A change in the size of text control, however, does not result in changing the size of its underlying field because the size of the field is specified in table's design and can be changed only by modifying the properties of the field in table design.

(viii) *Aligning and Spacing Controls* : Select two or more controls (click at control to be selected by holding the ***Shift Key*** pressed) to be aligned and choose Format-align or right click and choose Align from the shortcut menu to open the list of alignment options. Align-Left leads to aligning the left edges of all the selected controls; Align-Right aligns the right edges of the control. To adjust controls on the same horizontal line, Align-Top or Bottom options can be used. Spacing of controls allows to change (increase or decrease) the relative position of selected controls by one grid point horizontally or vertically. The spacing becomes important when the controls are to be spread out or move closer together for a neater visual layout. Spacing can also be used for ensuring that the controls are evenly spaced.

(ix) *Converting (or Morphing) Controls* : Initially, when a Form is built, it is not always possible to choose the best type of controls to display each field on the Form. One might make a choice for the control only to find out later that it does not suit to the requirements. This is particularly important when the initial design of a Form is created using Form wizard. Access provides for conversion (or morphing) of such control into the desired ones. One of the most common types of morphing is from text to List box or combo box. This is achieved by right click on the text box, followed by choosing ***Change To*** and selecting the type of control to into which text box is to be morphed. Every control cannot be morphed into every other type of control. Text box, for instance, can be converted into a label, list box or combo box. After morphing, a text box to list box, for instance, it is important to modify the control properties such as row source, bound column, column count and column width so that the changed control behaves in a desired manner.

(x) *Conditional formatting of text boxes* : The conditional formatting is displayed in a text control when the value of text control meets a specified criteria or a set of specified criterion. For example, the colour of Amount entered should turn Red when it exceeds a certain limit say Rs. 20,000. In order to create conditional format, right click at text box to be conditionally formatted when in design mode, followed by conditional formatting item of right click window. Access responds by providing conditional formatting window which appears as follows : Conditional formatting window, as shown above, is divided into two parts: the default setting and condition-1. Since the formatting is to occur on the basis of a field value, the criteria list control can be used to select greater than and Rs. 20,000 is entered in the right most box of condtion-1. There are five icons: bold, Italics, underline, Back colour and Fore colour for formatting the data value. As and when the condition is satisfied, the formatting based on the selected icons applies to the data value. If there are multiple conditions for formatting, Add button can be clicked to call for additional formatting conditions. At the most three conditions can be set up for conditional formatting. Click OK to apply the conditions and click Delete to remove the conditional format.

(xi) *Re-arranging the Tab Order* : The tab order of the Form (defined as a sequence of controls to move through when pressing a tab) is assigned while creating a Form. The tab order goes out of sequence when the controls in the Form are re-arranged. An inconsistent tab order leads to an erroneous data entry. To change the tab order, choose ***View-Tab*** order or right click and choose tab order to open

Tab Order dialog box. Clicking ***Auto Order*** generally rearranges the fields in the correct order. It is preferable to try this option first. If the auto order is not correct, the tab order can be set manually by clicking the row selector for a control and then dragging the control up or down into position in the Tab Order.

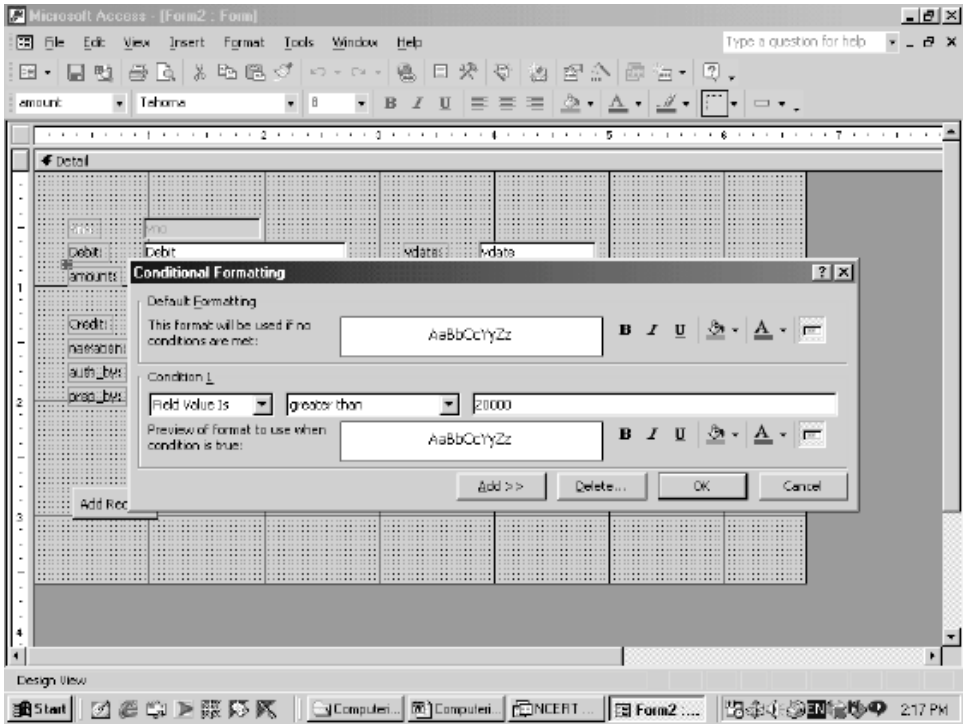


Fig. 15.3 : *Conditional formatting window*

15.3.6 Procedure for Creating Voucher Forms

On the basis of above discussion, the following procedure can be followed to create the different types of vouchers :

(a) Simple Transaction Voucher : The transaction data of simple accounting vouchers is required to be stored in the Vouchers table of a database by using a data entry Form in Access. The format of such a form is shown in figure 15.4.

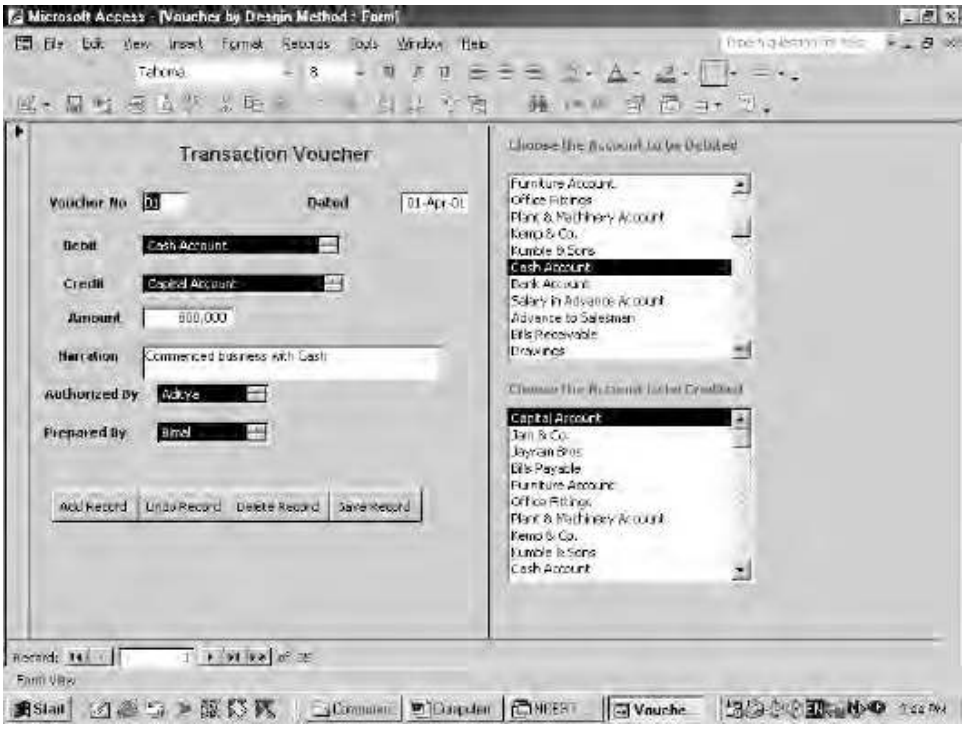


Fig. 15.4 : *Transaction voucher, using database design (model-I)*

The above voucher form uses database design (Model-I) at the backend. A perusal of the this voucher Form reveals that there are two parts: Left and Right separated by a dark vertical line. Left part is dedicated to the data entry of transaction data while the right part has two list controls: one each giving the accounts to be debited and credited. The pre-printed contents of simple transaction voucher appear to the left of above Form as bold dark words. The access resource required to display such pre-printed matter is label control. The data entry spaces against Voucher Number, Dated, Amount and Narration are Text Controls. The list controls have been deployed against Debit Account, Credit Account, Prepared By and Authorised By. The Title of the Voucher Form has been written by using the Label Control. Four operation buttons called Command Buttons control the data entry into the voucher Form. On the Right hand side of above voucher Form, the list controls have been used in expanded Form to choose debit and credit accounts. The resources used in creation of above voucher

Form, therefore, consist of Labels, Texts, List controls and Command Buttons. Once a blank Form is picked up like a container, it is capable of containing these controls including command buttons. The following steps are required for creating the Simple Transaction Voucher as per the Access design given above.

(i) Once the Database Window is opened and Forms object is selected, click at ***New*** item of menu bar. Access responds by displaying a New Form window in which design view option among others appears by default along with a list control to select a table or query which is to act as underlying data source for the voucher being designed. In designing Simple voucher Form, it is fairly clear that the data entered using this voucher Form is to be stored only in the Vouchers table.

(ii) Choose Vouchers table, which has been designed to include the transaction data in each row as a stand-alone record and click OK.

(iii) Access responds by displaying a blank Form object in Form window, along with two other windows: Tool box and Field List of Vouchers table. Expand this Form towards the right and divide it into two parts left and right using line controls of tool box say in the ratio of 3:1.

(iv) Keep the ***Ctrl Key*** pressed and click at every field in Field List Vouchers window. The colour of the list of fields turns blue.

(v) Press at the selected field's area and drag all the fields to left side of blank Form on which data entry contents of voucher are to be located. It may be noted that every data entry control has been assigned to its left an attached label control whose caption is the caption of the fields in Vouchers table.

(vi) Re-position all the controls to their desired location in the left part of the Form and set the font weight property of each to bold. The caption property of each label can be modified to match the pre-printed layout of the voucher.

(vii) Click at ***label*** control in tool box and add it to the centre top of left-hand side of the Form to add the title: ***Transaction Voucher***. Its font size property need be set to 16 with font weight set to ***bold***. Set the fore colour to ***Blue***.

(viii) Paste another text box anywhere in the Form and set its Control Source property as ***=Val(DMax("Vno","Voucher"))+1*** and Visible property to No. Further, Set Default value property of Text Box to the left of label Voucher No. as ***=Val(DMax("Vno","Voucher"))+1***. This ensures that the text control generates a new value one more than the preceding value of last voucher number entered in Vouchers table, as and when a new record is added. As a result, the voucher

number is detected in Vouchers table and incremented by one to auto generate the voucher number sequentially. Further, set the Enabled property to ***No*** so that the auto generated value is not amenable to any changes by the user.

(ix) Set Default value of Text box meant for entering the voucher date as **= *Now*().** This results in giving current RTC date as the default date to voucher as and when a new voucher record is added. Alternatively, click at ***More Control*** button in tool box to select Microsoft Data and Time Picker Control, Version 6. This control provides a user-friendly and interactive method of selecting a date. Set the format property of this control to "3-dpt custom" and custom-Format property to "dd-MMM-yy" by using DT Picker properties dialog. Control source of this control is set to vdate so that the selected date is stored directly into this field.

(x) Set the format property of Text box meant for Amount to ***Standard*** with decimal places to 2. This ensures the appearance of amount up to two decimal places with standard punctuation of numeric values.

(xi) Provide for conditional formatting of amount so that its colour turns red as and when an expense voucher exceeding Rs. 20,000 is not authorised by an employee whose EmpId ='A001'. This can be achieved by a right click at text box for amount to click at conditional formatting. A conditional formatting dialog appears in which condition-1 is to be given as "Field value greater than Rs. 20,000" interactively. Click **Add** button to provide condition-2 as Expression is ***[AuthBy]<>'A001' and [Debit] like '71*'***. Click colour icon to select red colour in condition-2. Click OK to close the conditional formatting dialog.

(xii) Control morphing from Text box to List box is to be applied on four-text control, each one meant to store Debit, Credit, AuthBy and PrepBy. This can be achieved by right click at each of these controls one by one and click at ***Change To*** item of right click window. To begin with, select List Box option for text box next to Label ***Debit***. Height of text box is expanded. Re-size, it to its original shape and right click to select the property window. Select Data properties button to provide the Row Source as ***Account*** table. Click at format properties button to set the column count property to ***2*** and column width property to ***0.5"***. Ensure that the width property of list control for debit is set to a minimum of 1.75" to accommodate the code as well as Name of Account in a row of list control. The process can be repeated for Text boxes next to Credit. Text controls meant for AuthBy and PrepBy can also be morphed into List Box

controls in a similar way, except that the Row Source Property should be Set to Employees table and Column width be set to .33" only because Empl_Id occupies only four text spaces as opposed to Account code, which need six spaces. Width property of these list controls can be suitably adjusted to accommodate both EmpId and Fname of employees authorising or preparing a voucher.

(xiii) Paste List Controls for selecting debit and credit Accounts on the Right Hand Side (RHS) of Voucher Form. Following steps are taken to accomplish this :

- Click at list box control available in tool box and carry the mouse pointer to the right side of the Form. Its shape will turn into a cross with icon of list control. Place it at the top of right part of the Form. Access responds by invoking List Box Wizard, which provides for three options to choose the look up values. By default, the wizard provides for choosing look up values from table or query.
- Click at Next button to get the classified list of tables and queries to choose from. At this stage, choose the Accounts table because domain of accounts to be debited or credited remains confined to accounts available in Accounts table only.
- Click at Next button to get the available fields of Accounts table: Code, Name and Type. Select Code and Name by clicking at > button.
- Click at Next to get a list of accounts with key column hidden. Uncheck the already checked box to display the key column also in list control.
- Click at Next to get an option to select code to store in database.
- Clicking at Next provides two options: One to remember the value for later use and second to store that value in this field. Choose second option and select the debit field to the right of this option as the column against which the key value of accounts from list control is to be stored.
- Repeat the above process to provide for a list control for Account to be Credited.
- Once both the List box controls for debit and credit entries have been pasted, change the caption property of labels attached to such List boxes and write the text "Choose the Account to be Debited" for first list box and "Choose the Account to be Credited" for second. Set the Font weight property to bold, the fore colour to red and green respectively to distinguish between debit and credit list control and re-size the label control by increasing its width to accommodate the text to caption of label. Re-size the

list boxes to adjust their width and height appropriately. This can be achieved by right clicking at each of the controls to get the property windows.

(xiv) Click at Command button in Tool Box and carry the mouse pointer to Area at the bottom of Left most bottom corner of the Voucher Form. Its shape turns into a cross with command button icon. Paste it by horizontal and vertical dragging to give suitable width and height. Immediately, the Command Button wizard is invoked to seek information about category of operation and the action to be performed using this command button. Choose Record operation as category with Add New Record as the action. Click at Next to state whether the caption of the command button is to be a text value or an icon. A click at next after appropriate selection results in giving a suitable object name to the command button. Accept the default value and click at finish. This results in pasting an operational button on the Form with the capability to add a new record.

(xv) Repeat this action to create various other command buttons to match the design of Transaction Voucher Form given above.

(b) Compound Transaction Voucher : The transaction data of Debit or Credit vouchers, which have already been described as compound transaction vouchers, is required to be stored in VouchersMain and VouchersDetails tables of database. Its design, when transformed in Access Form layout, is expected to appear in the following format :

A perusal of the above Access Form for Credit Voucher reveals that there are four labels: Voucher No, Date, Prepared By and Authorised By in Dark bold letters. These labels are meant to define the pre-printed content of the voucher as per design. Next to first two labels: Voucher No. and Date are text boxes displaying their respective data contents. To the right of labels Authorised By and Prepared By are List Box controls to get and display the first name of employees. Text Box displays the Title of the Voucher Form ***Credit Voucher*** as calculated control because the same voucher design is used for Debit vouchers also. Just below this dynamic title is the Option group control whereby the user can make a mutually exclusive choice for Debit or Credit Voucher. The title of Entries Grid and Text box to the left of a list control are used to select an account to be debited or credited (the complementing account) against the accounts being mentioned in the Entries Grid are also calculated text controls. The calculated text controls acquire the text value to display on the basis of what is selected in the Option groups. Next to calculated text box control is a label to print an instruction for refreshing the display in grid. The grid consists of five columns: S.No, Code, Name of Account, Amount and Narration. The grid appears in the voucher by using SubForm control. Besides this, there are five command buttons, each dedicated to Add

Record, Undo Record, Delete Record, Save Record and Close. These command buttons operate on the data entry Form.

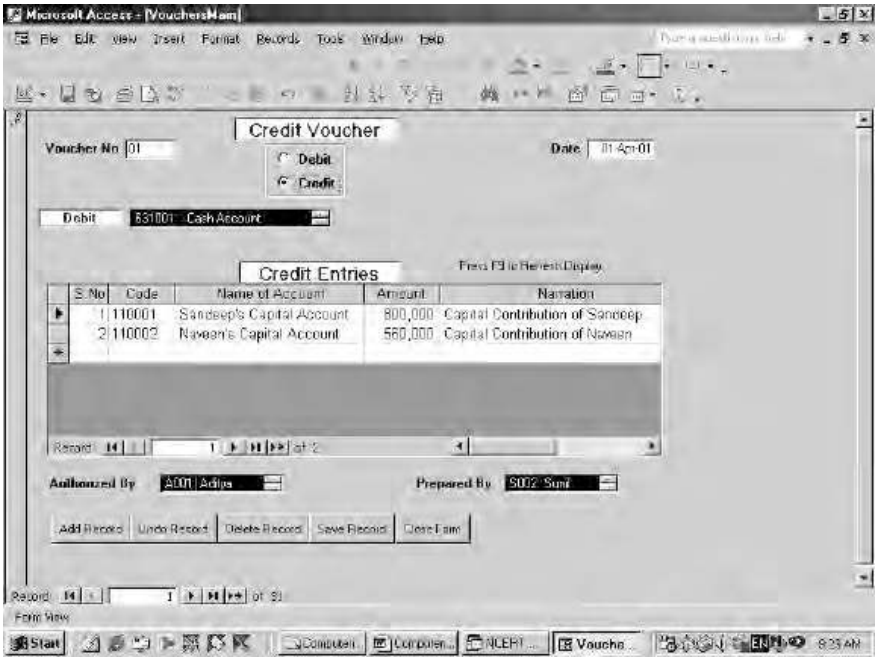


Fig. 15.5 : *Credit voucher created as a form in access*

To create this voucher Form, following steps are taken using design view :

(i) Create a blank form in design view and ensure that its underlying data source is selected as ***VouchersMain*** table and Field List window along with tool box is also displayed. As already discussed in Section I of this chapter, the Compound Voucher Form requires another related data table, ***VouchersDetail,*** for storing the data contents of grid.

(ii) Keep the ***Ctrl key*** pressed and click at Vno,Vdate, AuthBy and PrepBy fields in Field List window.

(iii) Press at any of the selected field's area, drag and drop it to blank Form. It can be observed that all the selected fields are also dragged and dropped along with this field.

(iv) Re-position all the controls to their desired location in the Form and set the font weight property of each to bold. The caption property of each label can be modified to match the pre-printed layout of the voucher.

(v) Paste Option group control just below the form space meant for dynamic title. Access responds by prompting the user to enter the label names for each option. Enter two options by writing Debit and Credit in different rows. This must be followed by a click at ***Next*** button.

(vi) Option group wizard responds by prompting the designer to enter the default option.

(vii) Select Debit so that by default, the compound voucher is a Debit Voucher. Click at ***Next*** button. Access responds by prompting the designer to enter the data values corresponding to each of the option labels. Enter against Debit and Credit **0** and **1** respectively. Click ***Next*** button.

(viii) Access Responds by requiring the user to either opt for ***Save the value for Later Use*** *or* ***Save the value in this Field***. Choose the second option for ***Save the value*** and select Vno as Type field. Click at ***Next*** button.

(ix) Access responds by asking the designer to choose the appropriate control type. Choose Option buttons, along with any of the styles given below in wizard dialog. Click ***Finish*** button. Access assigns a default label to the Option group. Select the label by right clicks and remove it by clicking at ***Cut***.

(x) Click at text control in tool box and add it to the centre top of the Form to provide a dynamic text for the title: ***Debit or Credit Voucher***. The attached label control is removed by a right click on this label followed by a click on ***Cut***. The font size property of Text need be set to 16 with font weight set to bold. Set the fore colour to Blue. Set its Control Source property as ***= IIF([Type] = 0,"Debit","Credit") & " " & "Voucher"*** Re-size the width of this text control so that it can accommodate and display the dynamic title of voucher. By entering the above formulae in Control Source property, text control for title becomes dynamic. Whenever, the Type field is assigned 0 value, a text control for title displays Debit Voucher and when the value of Type is set to 1, the Credit Voucher is displayed by the this Text control. The title of simple Transaction Voucher is static. Therefore, a label control has been used for this purpose. Further, set the ***Enabled*** property to ***No*** so that the displayed text is not amendable to any changes by the user. This applies to other similar controls meant for dynamic texts in this Voucher Form.

(xi) Paste another text box anywhere in the Form and set its Control Source Property as ***= Val(DMax("Vno","Voucher")) + 1*** and ***Visible*** property to ***No***. Further, Set Default value property of Text box to the left of label Voucher No. as ***=Val(DMax("Vno","Voucher"))+1***. This ensures that the text control generates a new value one more

than the preceding value of the last voucher number entered in vouchers table as and when a new record is added. As a result, the voucher number is detected in Voucher table and incremented by one to auto generate the voucher number sequentially. Set its ***Enabled*** property to ***No*** for reasons already explained earlier.

(xii) Set Default value of Text box meant for entering the voucher date as **= *Now*().** This results in displaying RTC date as the default date to voucher as and when a new voucher record is added.

(xiii) Paste another text control below, the label ***Voucher No*:** to indicate Debit in case of Credit voucher and Credit in case of Debit Voucher. Remove its attached label and set its Font size and font weight property appropriately. However, its Control Source property is set as **= *IIF([Type] = 0,"Credit","Debit")*** so that this text box displays the desired text as stated above. Pick up a List control from tool box and place it next to this calculated text control to choose the account. Immediately, the List control wizard gets activated and displayed. Complete the list control creation process as already discussed while designing the simple transaction form. Ensure that its Control source property is assigned the Field name ***AccCode***; Row Source to ***Accounts***; Column Count set to **2**; Bound Column set to **1** and Column width to **0.5"**. Re-size the control for proper display.

Creating Grid for Debit/Credit Entries : The grid for entries is created by using SubForm Control. Following steps are taken to create SubForm to be linked to Main Voucher Form :

(i) Pick and paste SubForm control for creating a grid to accommodate the Debit/Credit Entries. SubForm wizard gets activated and displayed. Choose existing Tables/Queries, followed by click at ***Next*** button. Subform wizard displays a dialog to giving fields classified by their respective tables. Choose Sno, Code from ***VouchersDetail*** table; Name from Accounts table; again Amount, narration and Vno from ***VouchersDetail*** table. Click ***Next*** button.

(ii) Choose "Show VoucherDetail for each record in VouchersMain using Vno" and Click ***Next*** and provide the name for subform object as "VouchersDetail SubForm" Click at ***Finish***. The SubForm stands created to accommodate the data contents in voucher grid. The attached label of SubForm is removed to pave the way for creating dynamic title. This is achieved by adding another text control (remove the attached label control) at the top of the SubForm in the same manner as applies to the title of voucher, except that the Control Source property is set to **= *IIF([Type] = 0,"Debit","Credit") & " " & "Entries"***. This calculated control is capable of showing the title of the grid as Debit Entries or Credit Entries, depending on choice of Option button at run time.

The Voucher number column in grid can be hidden by merging its right most vertical line with vertical line separating narration and voucher number column by drag and drop method.

(iii) Set the format property of Text box meant for Amount to ***Standard*** with decimal places to **2**. This ensures the appearance of amount up to two decimal places with standard punctuation of numeric values.

(iv) Provide conditional formatting of amount so that its colour turns ino red as and when an expense voucher exceeding Rs. 20,000 is not authorised by an employee whose EmpId ='A001'. This is achieved by a right click at text box for ***amount*** to get short-cut window so that conditional formatting item is selected. A conditional formatting dialog appears in which condition-1 is to be given as "Field value greater than Rs. 20,000" interactively. Click ***Add*** button to provide condition-2 as Expression is ***[AuthBy]<>'A001' and [Debit] like '71*'***. Click colour icon to select Red colour in condition-2. Click ***OK*** to close the conditional formatting dialog.

(v) Text control for entering Code in SubForm can be morphed to List control in the same manner as already explained for Debit/Credit Account in simple Transaction Voucher except that the Control source property is assigned the Field name Code of ***VouchersDetail*** Table.

(vi) Control morphing from Text box to List box is also to be applied on text controls meant to store the data values for AuthBy and PrepBy respectively. This can be achieved in the manner as already described in the context of designing a simple Transaction Voucher.

(vii) Paste a label control to the top right of SubForm for displaying the instruction "Press F9 to Refresh Display".

(viii) Command button at the bottom of Debit/Credit Voucher Form can be added in the same manner as described above in the context of Simple Transaction Form. An additional Command button with Caption ***Close Form*** can be added by choosing Form Operation as category with ***Close Form*** as the action.

While operating on the above form in run mode, it must be ensured by the user that the entries in the grid are made only after saving the data contents of voucher outside the grid. This is because a data record for contents outside the grid belongs to VouchersMain table. Such record in primary table must exist before any data record is entered in grid to be finally stored in ***VouchersDetail*** table.

15.4 Information Using Queries

Accounting information that is presented in an accounting report is generated by creating and executing various queries using DBMS. The basics of creating such queries in MS Access have been described below along with their usage in the context of Model-1.

15.4.1 Basics of Creating Queries in Access

Recall that one of the great advantages of relational databases is that the fragmented data is stored in different data tables so that there is no or minimum redundancy. But a complete view of data stored across various tables is achieved only by executing queries based on SQL. A query is capable of displaying records containing fields from across a number of data tables.

15.4.2 Types of Queries

There are several types of queries in Access that are used to generate information. Such queries are called select queries because they are used to "select" records with a given set of fields: actual and computed and also for a given criteria. There are three important query types that are required for generating the accounting reports. These queries have been discussed as below:

(a) *Simple Query* : A select query is a simple query if it does not involve use of any query function to produce a summary of data. The criteria, if any, used in such a query is based on some constant value or values, forming an integral part of the query. For example, a query, to find date and amount of transactions records in which an account, identified by code = '711001' is debited, is a simple query and is executed, using database design of Model-I by the following SQL statement :

SELECT vDate, Amount
FROM Vouchers
WHERE Debit = '711001'

In the above SQL statement, the SELECT statement is meant to specify the fields to be selected, FROM clause specifies the source of data and WHERE clause filters the records matching the condition that Debit field has code = '711001'

(b) *Parameter Queries* : A parameter query prompts the user to enter parameters, or criteria through an input box, for selecting a set of records. A parameter query is useful when there is a need to repeat the same query with different criteria. The criteria, this means, is not constant as in the case of the simple query. While extracting the transactions to prepare ledger accounts, the same set of queries need be executed for different account codes. Consider the following SQL statement :

PARAMETERS AccountName Text (255)
SELECT Name
FROM Accounts
WHERE Code = AccountNo

In the above query, the PARAMETERS clause is meant to declare the variable AccountNo. This SQL statement, when executed, prompts the user to provide the value of AccountNo.

(c) *Summary Queries* : A summary query, as opposed to a simple query, is used to extract aggregate of data items for a group of records rather than a detailed set of records. This query type is of particular importance in accounting because the accounting reports are based on summarisation of transaction data. Consider the following SQL statement :

```
SELECT Code, Name, Sum(Amount)
From Vouchers INNER JOIN Accounts
ON (Accounts.Code=Vouchers.Debit)
GROUP BY Code, Name
```

In the above query, the ***Vouchers*** table has been joined with ***Accounts*** table on the basis of ***Code*** field of Accounts and ***Debit*** field of Vouchers. The resultant record set has been grouped on the basis of Code and name of accounts. Accordingly, the sum of amount for each group (or set of records) has been ascertained and displayed. Finding the sum is the process of summarisation.

15.4.3 Adding Computed fields

The computed fields, representing secondary data, do not form part of data stored in tables because such data items unnecessarily increase the size of database. The secondary data items can always be generated on the basis of primary (or stored) data. In order to find values of such secondary data items, the query is based on computed fields. The computed fields provide up-to-date calculated results because they rely upon updated stored data values. For example, a data table, named *Sales*, which includes ItemCode, Quantity, Price, Dated and CustId, is maintained in a database to store sales transactions. In order to get list of sales transactions along with total sales relating to CustId='A051', the following simple query is executed by including Sales as computed field :

```
SELECT Dated, ItemCode, Quantity*Price AS Sales
FROM Sales WHERE CustId= 'A051';
```

In the above query the expression Quantity*Price has been given the name Sales by using ***AS*** clause.

15.4.4 Using Functions in Queries

A function in the Access environment is named and followed by parenthesis ( ). The function receives some inputs as its arguments and returns a value (also called its output). These functions also form a part of the expression for a computed field. Some commonly used functions have been described and discussed in Appendix given at the end of the chapter.

15.4.5 Methods of Creating Query

There are three ways in which any of the above queries can be created in Access. These methods are Wizard, Design and SQL View. A brief description of each is given below :

(a) *Wizard Method* : In order to create a query using Wizard, the following steps are required :

(i) Select Queries from Objects list given in LHS (Left Hand Side) of Database window.

(ii) Double click at ***Create Query by Using Wizard*** given on the RHS (Right Hand Side). Immediately, there is a window titled 'Simple Query Wizard' (Shown in figure: 14.6) that prompts the user to select a field from a table or an existing query that is to be included in the query being created. Many such fields may be selected according to the information requirement of the query. The tables (or queries)

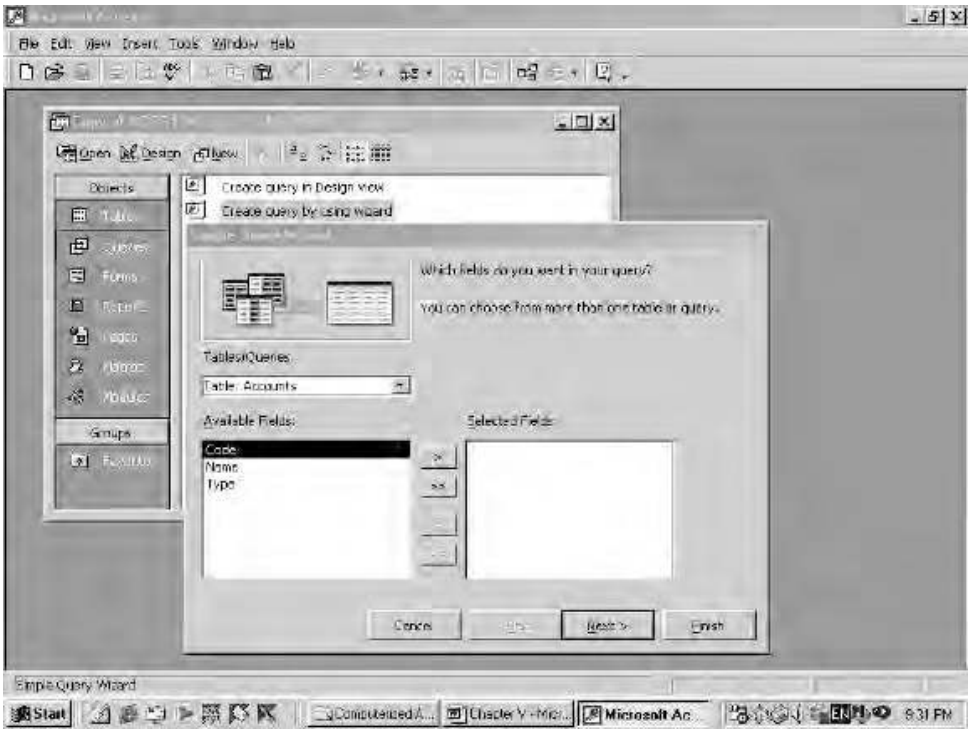


Fig. 15.6 : *Window to display simple query wizard*

being chosen represent the data source of the query being created. The fields being selected imply the data items to be displayed by the query. Use arrow buttons or double click at the list of fields on LHS of this window to select fields.

(iii) Click at ***Next*** after the desired fields have been selected. If the selected fields include a number or currency field, the designer is prompted to choose an option button to specify whether the query to be created is a summary or detail query.
- If detail option is chosen, the execution of query results in displaying records from data source.
- If summary option is selected, the user is prompted to indicate the type of summarisation required: Sum, Average, Minimum and Maximum with respect to the field of summarisation. Clicking at check boxes against different types of summarisations specifies this. Click ***OK.***

(iv) Click at ***Next*** and specify the name of the query being created **%** ***Finish*** to save and execute the query. The results of the query are displayed in datasheet view.

(b) *Design Method* : In order to create a query by design method, the following steps are required :

(i) Select Queries from Objects list given in LHS of database window. Double click at ***Create Query by Using Design View*** given on the RHS.

(ii) Access responds by displaying a ***Select Query*** and ***Show Tables*** Window. The Select query window is vertically divided into two panes: upper pane and lower pane, as shown in Figure: 15.7. The upper pane is meant to display data sources (Tables or Existing Queries) and the lower pane, which also called Query By Example (QBE) grid, has one column each for field to be included in query being created. The row of this grid shows field name, table (or query), sort order, whether the selected field is shown in the query results or not and also the criteria that have been applied to the field or fields to restrict the query results. The Show Table Window is meant to add tables, queries or both to the upper pane of Select Query Window. If closed, the Show Table Window can be recalled by a right click at upper pane **%** show table.

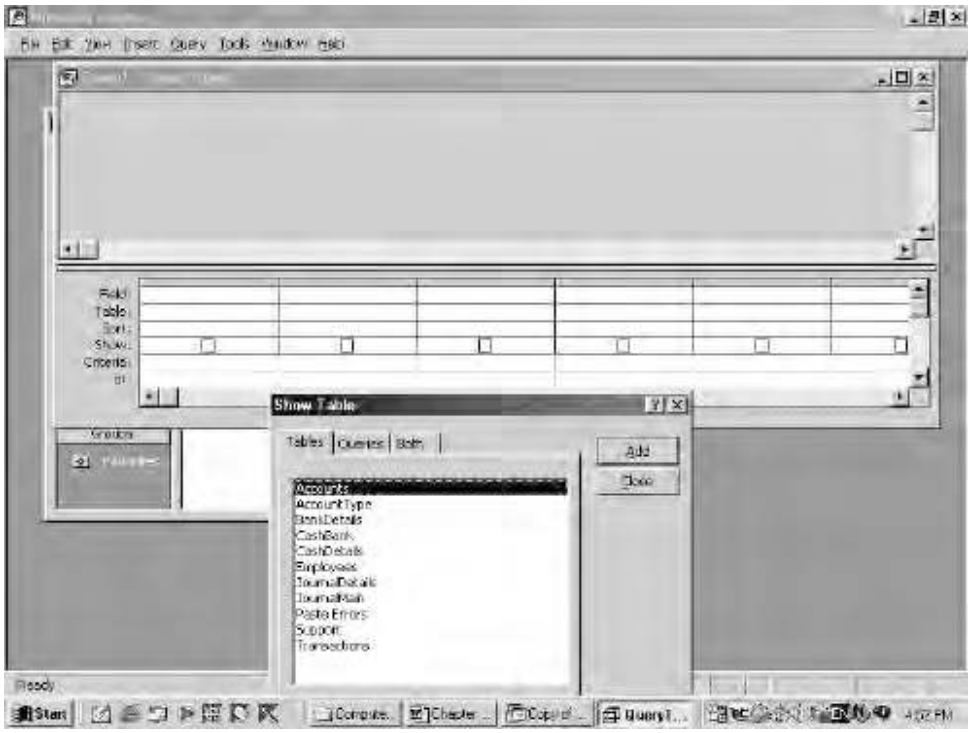


Fig. 15.7 : Select query and show tables windows

(iii) Click at View item of Menu bar % Total and then % Table Names.

(iv) Click at *field* row of first column of QBE grid to select the fields to be included in the query. The process is repeated for second and subsequent columns of grid to include more fields in the query. This process of selection constitutes the data items to be displayed by SELECT clause of SQL statement.

(v) The name of table or query is displayed, in accordance with selection of fields. Such tables or queries constitute the data sources shown after FROM clause of SQL statement. However, the initial selection of a table/query in the second row of QBE grid restricts the choice of fields to the selected table/query only.

(vi) Click at row of grid to specify the Group by clause and aggregate functions so that summary a query is created.

(vii) Click at row of grid to specify the sort order (Ascending or descending) on field(s). The selected fields for sort order are shown after ORDER BY clause of SQL statement in which ascending order is the choice by default.

(viii) Click at row to check for the selected field to be displayed in the query result. The field(s) may be selected only for the purpose of specifying the sort order or criteria.

- Click at row of the grid to specify the criteria to limit the records to be displayed by the query being created. The specified criteria result in a conditional expression, which is shown after the WHERE clause of SQL statement.
- Click ***File % Save*** (or Press Ctrl+S) to save a query. A dialog box prompts the user to specify the name of the query being created. By default a generic name appears which can be accepted or rewritten with a desired name.

(c) *SQL View Method* : A query may be directly specified in Select Query Pane by a right click at table pane % SQL view. The upper and lower panes of selected query window are substituted by a pane to specify the SQL statement that is written by using keyboard. The desired SQL statement is directly okeyed in on this pane and saved in the same manner as described for design method. While forming the SQL statement, the following clauses are normally used for generating information (or Select) queries :

(i) *SELECT* : This clause is used to specify the fields to display data or information. Consider the following SQL statement segment :

```
SELECT Code, Name, Amount
```

The fields Code, Name and Amount after SELECT clause indicate the data items to be displayed by the query statement.

(ii) *FROM* : This clause is meant to indicate the source of data in terms of tables or queries or a combination of both. Two tables are joined by specifying a JOIN clause based on a condition of Join. There can be three types of Join: Inner, Left and right.

(iii) *INNER* : This Join clause is meant to display only exactly matching records between two data sources. Consider the following SQL statement segment:

```
FROM Accounts INNER JOIN AccountType
ON ( CatId=Type)
```

In the above statement, only those records of Accounts and AccountType table constitute the source of query data, which match exactly on CatId = Type.

(iv) *LEFT* : With this Join, all the records in the primary table in the relationship are displayed irrespective whether there are matching records in the related table or not. Consider the following SQL statement segment :

FROM Accounts **LEFT JOIN** AccountType
ON (CatId=Type)

In the above statement, all records of Accounts along with matching records of AccountType table constitute the source of query data, The matching condition is CatId = Type.

(v) *RIGHT* : With this Join, all the records of related table in the relationship are displayed irrespective whether there are matching records in the primary table or not. Consider the following SQL statement segment

FROM Accounts **RIGHT JOIN** AccountType
ON (CatId=Type)

In the above statement, all records of AccountType along with matching records of Accounts table constitute the source of query data. The matching condition is CatId=Type.

(iv) *WHERE* : This clause in SQL statement is used to provide the condition to restrict the records to be returned by query. The resultant records of query must satisfy the condition which is specified after WHERE clause. This is meant to filter records returned by the query.

(v) *ORDER BY* : This clause is meant to specify the order in which the resultant records of query are required to appear. The basis of ordering is determined by the list of fields specified after the order by clause. Consider the following SQL statement segment :

ORDER BY Type, Code

The above statement in the context of Accounts table implies that the resultant record set is ordered by the **Type** field of Accounts and within Type, by **Code** field of Accounts.

(vi) *GROUP BY* : The group by clause is used in the SQL statement to enable grouping of records for creating summary query. The fields after GROUP BY clause constitute the basis of grouping for which summary results are obtained. Consider the following SQL statement:

SELECT Debit, **Sum(**Amount**)**
FROM Vouchers
GROUP BY Debit

In the above SQL statement, the GROUP BY clause uses Debit account codes as the basis for computing the sum of amount of voucher. The total amount, by which every transacted account has been debited, is given by this SQL statement In this case, sum of amount is found for each group of records formed using GROUP BY clause.

15.5 Generating Accounting Reports

An Accounting system without reporting capability is incomplete as reporting is one of the main purposes for which an accounting system is designed and operated upon. The output of accounting system takes the form of accounting reports. Access offers a great flexibility in designing and generating customised reports.

15.5.1 Accounting Reports

Every report consists of 'information', which is different from 'data'. Data processing leads to data transformation and when this processing is in accordance with decision usefulness, it is called information. Information generation is the process of compiling, arranging, formatting and presenting information to the users. A report is prepared with a definite objective. Every report is collection of related information for a particular need and purpose and must meet the twin objectives of reporting : *one* to reduce the level of uncertainty that is faced by a decision-maker; *second* to influence the behaviour (or positive actions) of the decision-maker. Accordingly, accounting information, generated by processing accounting data is gathered to generate an accounting report. An accounting report, therefore, is the physical form of accounting information. Useful accounting information, regardless of its physical form, must have five characteristics: relevance, timeliness, accuracy, completeness and summarisation. An accounting report, in order to be useful, must display information content in such a manner as to give confidence to the user, influence his behaviour and prompt him to take positive actions. Reports, which do not meet the above stated objectives, lack or do not have sufficient information content, have no value. There are two broad classes of accounting reports: Programmed and Casual (also called Adhoc or Pass through).

(a) *Programmed Reports* : These reports contain information useful for decision-making situations that the users have anticipated to occur. There are two types of reports within this report type: Scheduled and On demand.
   - *Scheduled Reports* : The reports, which are produced according to a given time frame, are called scheduled reports. The time frame may be daily, weekly, monthly, quarterly or yearly. Some examples of scheduled

reports are: Trial Balance, Ledger, Statement of Cash Transactions (Cash Book), Statement of Ageing Accounts, Closing Stock Report, Profit and Loss Account and Balance Sheet, etc.

- *On Demand Reports* : The reports, which are generated only on the triggering of some event, are called On demand reports. Some examples of On demand reports are a Customer's Statement of Account, Inventory Re-order Report, Stock in hand Report for a Selected Group of items, etc.
- *Casual Reports* : There are reports, the need for which is not anticipated, the information content of which may be useful but casually required. These are adhoc reports and are generated casually by executing some simple queries without requiring much of professional assistance. As opposed to programmed reports, casual reports are generated as and when required.

15.5.2 Process of Creating Reports

The process of generating accounting reports in Access involves three steps: designing the report, identifying the accounting information queries, and finally creating an accounting report by using such queries.

(i) *Designing the Report* : Every report is expected to meet certain objectives of reporting for which it is designed and developed. It should not be too big so as not to be read at all or too small so as to conceal certain vital information of importance that is expected to facilitate decision-making. Objective-oriented reporting means designing the report in such a manner as to meet the pre-conceived objectives in view.

(ii) *Identifying Accounting Information Queries* : A number of SQL statements are written in such a manner that each successive SQL relies on the results of the preceding SQL statement and refines its results by using fresh data (or information) from existing data tables (or queries).

(iii) *Using the Record set of Final SQL :* The record set of final SQL that relies upon preceding SQL statement, is collection of report-oriented information. This record set need be embedded in the report being produced.

15.5.3 Basics of Designing a Report in Access

A report, in Access, is a static presentation of stored or transformed data in an organised manner. Access saves the design of the report, which consists of information structure along with various controls to display information content and its record source. When a saved report is opened, the information content is retrieved from the tables and displayed according to the design. As a result, a saved report design, when opened, displays the information content

according to the current state of data. There are two types of formats of presenting information through a report: Columnar and Tabular.

- *Columnar Report Format* : A columnar format displays the caption of each field on a separate line in a single column down the page. The corresponding information contents of the fields are shown in another column next to their respective fields. If the caption property of a field is kept blank, the name of the field is used as its caption. This implies that there are two columns in this format: *one* for displaying the fields and *another* for showing the corresponding information content. A record set that consists of nine fields, when presented in such a format, requires nine lines of report. In columnar format, the total number of lines to be printed equals the number of fields multiplied by the number of record sets to be displayed.
- *Tabular Report Format* : A tabular format displays the caption of fields on the same line so that their respective information contents appear in the next line. The number of columns in tabular report is exactly equal to the number of fields to be displayed. It implies that the above mentioned record set, when presented in tabular format, requires one line for captions of fields and another line for information content. In tabular format, the total number of lines to be printed equals the number of record sets to be displayed plus one for captions of fields to constitute column headings.

15.5.4 Structure of Report in Access

A report in Access is designed using seven sections which taken together constitutes the structure of report design. It is not necessary that every report designed in Access must have all the sections that have been described below:

- *Report Header :* Report header appears at the top of the report and may include title and other relevant information pertaining to the report.
- *Page Header* : Page header appears at the top of every page of the report. It may include a uniform title to indicate that the page belongs to a particular report.
- *Group Header* : The group header and footer are available in a report only if the sort order and grouping levels are also defined on the basis of a field of data source. This is because Group Header and Footers are properties of the field that are used for defining the sort order. Depending on grouping level, the group header appears at the top of each report group. A set of report pages constitutes a report group. Each group level of report contains a separate group header.
- *Details* : The details section, which is also called the main body of a report, contains data from tables or queries that provide the record source to a report. This section is most important as it consists of the main information content of a report.

- *Group Footer* : The group footer appears at the bottom of each grouping level and may contain summaries or sub-totals for the grouped data.
- *Page Footer* : The page footer appears at the bottom of each page of the report and is meant to include page numbers, date and time of report generation.
- *Report Footer* : The report footer appears once on the last page of the report to include summaries or totals for all data of the report.

It is not necessary to incorporate each and every section or component of report structure. Those report structure components, which are not required in a specific report being designed, are suppressed. To achieve this suppression, open the ***View*** Menu to hide or display the Report Header/Footer, Report Page Header/Footer. The size of every section or report structure component is increased or decreased by dragging section bars up or down using a mouse.

15.5.5 Methods of Creating a Report

There are three ways in which a report can be created in Access. A brief description of each method is given below:

(a) *Auto Report*: This is the easiest method of creating a report both with columnar and tabular formats. To begin with formulate, create and save a query, which is capable of providing a record set as the information source of report. Alternatively, the information content must be available in a single table of the database. If the information is generated by relying upon more than one table, query is the option to be exercise. After the information source becomes available in the database, the following procedure is adopted to create Auto Reports.

(i) Select Reports from objects list given in LHS of Database window and click at ***New*** object button of tool bar. Access responds by displaying the following ***New Report*** *Window*.

(ii) Choose ***AutoReport: Columnar*** or ***AutoReport: Tabular***, followed by selecting the information source query or table.

(iii) Click ***OK*** to generate the report. Access responds by creating and displaying the report in printpreview mode.

(iv) To print the report, click at the print icon on tool bar.

(v) To save the report design as object, close the print preview window, and provide a suitable name.

Auto Reports are easy and fast to create. But these reports are less attractive. To prepare more professional report, report wizard is used.

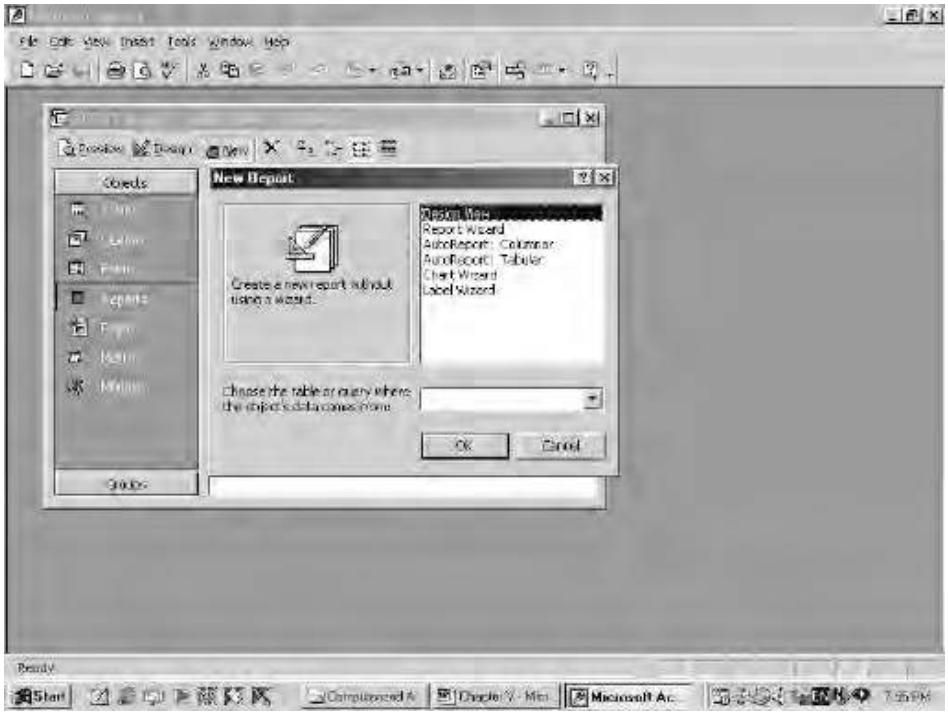


Fig. 15.8 : *New report window to choose methods of report design*

(b) *Wizard* : The Report wizard allows a designer to choose the fields from multiple tables along with specification for grouping, sorting and formatting of information content in report. This obviates the limitation of Auto Reports. In order to create reports by wizard, following steps are required.

(i) After selecting Reports object, double click at ***Create Report by Using Wizard***. Access responds by displaying Report Wizard window similar to the one displayed for query wizard (See Fig 14.10).

(ii) Choose the table or query that includes information content of report, from Tables/Queries drop-down list on LHS.

(iii) Use arrow buttons to select fields to provide the information source to report. Single right arrow button is used to select one field and double arrow button to select all fields. Alternatively, double click at the fields to be selected in the same order in which they are required to be displayed in the report.

(iv) Another table or query can be chosen to select more fields for a report to provide a definite relationship between the tables is defined. Click ***Next*** when selection process of data source is complete.

(v) Access responds by prompting the designer to add any grouping level(s) for displaying the information content of the report. The report is prepared by choosing any repeated data item to constitute a group. Click ***Next*** when the grouping level is added and defined.

(vi) Access responds by requiring the designer to specify the sort order based on any of the fields contained in the report. The records may be sorted up to four fields by specifying either ascending or descending order for each field. After specifying the sort order, click ***Next*** or specify the summary values to calculate. The summary values are sum, average, minimum and maximum. Once summary values are specified, click ***OK***, followed by click ***Next***.

(vii) Report wizard responds by requiring the designer to choose the report layout (stepped, block, outline and align left) and its orientation (portrait and landscape). Click ***Next*** after specifying the layout and orientation.

(viii) Report wizard prompts the designer to choose a particular style of report from among six styles: bold, casual, compact, corporate, formal and soft-gray. After choosing a suitable style for report, click ***Next***.

(ix) Report wizard prompts the designer to specify the title of report being designed. Further, the designer is provided with two options: preview the report or modify its design. After exercising the option, click ***Finish***.

(x) Access presents the report in preview mode or design mode depending on which option is chosen in (i) above.

(c) *Design View* : The design view method offers greatest flexibility to the designer in designing a report. In this method, the report is designed by assembling and embedding various components from report tool box. In order to design a report by using design view, following steps are required:

(i) After selecting Reports object, double click ***Create report in Design view***. Access responds by providing a blank report object with three sections: Report/Page header, Detail and Report/Page footer as shown in Figure : 15.9.

(ii) Right click the mouse at the black spot appearing at the left of horizontal ruler of above report. Report object responds by displaying a drop down window.

(iii) Click ***Properties*** and select Record Source from ***Data*** tab. The record source turns into a combo control giving a list of various tables and queries. Choose the appropriate source of information to be presented

in the report being designed. Access responds by providing a list of fields of the selected record source. If this list does not appear or it is closed by mistake, it can be recalled by clicking at the field list icon appearing before the icon for tool box.

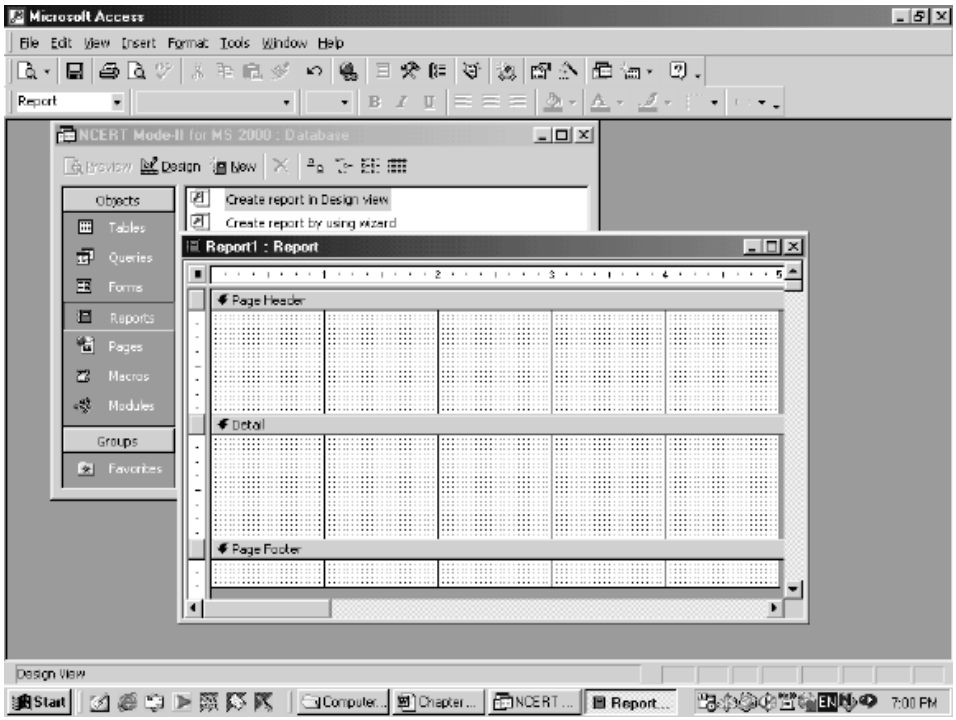


Fig.15.9 : *Window displaying design view of report*

(iv) Select the required fields from list of fields displayed as discussed in (c) above, by clicking at each of the fields to be selected while keeping the ***Ctrl key*** pressed. Drag and drop the selected fields to ***Detail*** section.

(v) The label part of each field is moved to Report/Page header and text part is accordingly aligned below their respective labels column wise. The caption of each label giving headings can be suitably modified, if required.

(vii) The vertical ruler controlling the distance between various report sections can be suitably adjusted to give a better look to the report.

The Report/Page footer bar is brought close to the fields laid out in ***Detail*** section so that the gap between records of details section is minimized.

(viii) Page headers and page footers may also be added by right click at title bar of report object, followed by click at Page header/footer.

15.5.6 Refining the Report Design

The design of the report created by any of the methods described above may be improved upon by making the following additions and modifications to the report. For this purpose, an existing report is opened in design mode.

- *Adding Dates and Page Numbers* : When an existing report is opened in design mode, the page footer of the report contains two unbound controls: the current date and ***current page number*** *of* ***total number of pages***. Both the controls may be customised according to the requirement of the designer. The date control uses = ***Now()*** function to retrieve the current date from RTC of computer. The format of date may be modified by selecting General date, Medium date, Short date or Long date from format property of this control.

  Further, when a report is created using design view method, the date and/ or time and also the page numbers may be added to any of its part. The date and time is added by clicking Insert % date and time from the menu bar to open the Date and Time dialog box. After selecting and specifying the desired preferences regarding date and time, click ***OK*** to find that a text control with chosen date and time preferences is added at the top of active report section. This added text control containing date and time may be dragged and dropped in any part of the report as per requirement. Similarly, the page number is added by clicking ***Insert % page*** numbers from the menu bar to open the Page numbers dialogue box. This dialogue allows the designer to specify the format, position and alignment. The two formats are: Page N (for example Page 1) and Page N of M (for example Page 1 of 10). The position to specify is either Top of Page (header) or Bottom of Page (footer). Possible alignment, which may be specified are Centre, left, right, inside and outside.
- *Adding and Deleting Report Controls* : After a report has been designed, additional report controls may be added or deleted by the same procedure as applicable to forms. Clicking tool bar icon opens report design tool bar, which contains a set of useful controls.

  (a) After opening the report in design mode, click ***Field List*** button on report design tool bar. This results in opening the field list window.

(b) Drag the field into an appropriate section of the report. The field appears with both label and text box control. The label part gives a constant field heading while the text part provid

.es different values of the field. These two parts are accordingly placed at the appropriate sections of the report.

(c) A field control may be deleted by selecting the control and pressing the ***Delete*** key.

- *Conditionally Formatting Report Controls* : The conditional formatting of text boxes and combo boxes in reports can be achieved in the same manner, as it applies to Forms. The conditional formatting allows the designer to apply special text formats that depend on the value of field. This facility is a useful tool to draw the attention of user or reader of report to some values of particular interest, such as amounts exceeding certain limit or unexpected balances in some accounts. In order to create a conditional formatting, following steps are required:
  (a) Open the report in design view.
  (b) Select a control and click at format on menu bar, followed by conditional formatting.
  (c) Provide the necessary conditions for formatting to occur in the same manner as already discussed while applying conditional formatting to design of Forms.
  (d) The conditional formatting is removed by re-opening the same dialog and clicking at ***delete*** button.
- *Grouping Levels and Sorting Order* : The purpose of grouping is to organise the information content of a report into categories. Sorting order is meant to arrange such information content into numerical or alphabetical order. With groupings the sorting applies to each individual group. The grouping and sorting of information, when applied together, make the report more meaningful and therefore useful to the user of the report. In order to specify the grouping and sorting order, following procedure is adopted.
  (i) Click at Sorting and Grouping icon of Report Design Tool bar (This icon is located next to icon for tool box). Immediately, Access responds by displaying the following Sorting and Grouping dialogue box.
  (ii) The LHS of this dialog box provides a list of fields or expressions that are to be used for grouping and sorting. In the above dialog box, ***Type*** field of Accounts has been chosen as the basis of grouping the information content of trial balance. The group header and footer property is set to ***Yes*** to indicate that there is separate header and footer for each group of accounts in trial balance.

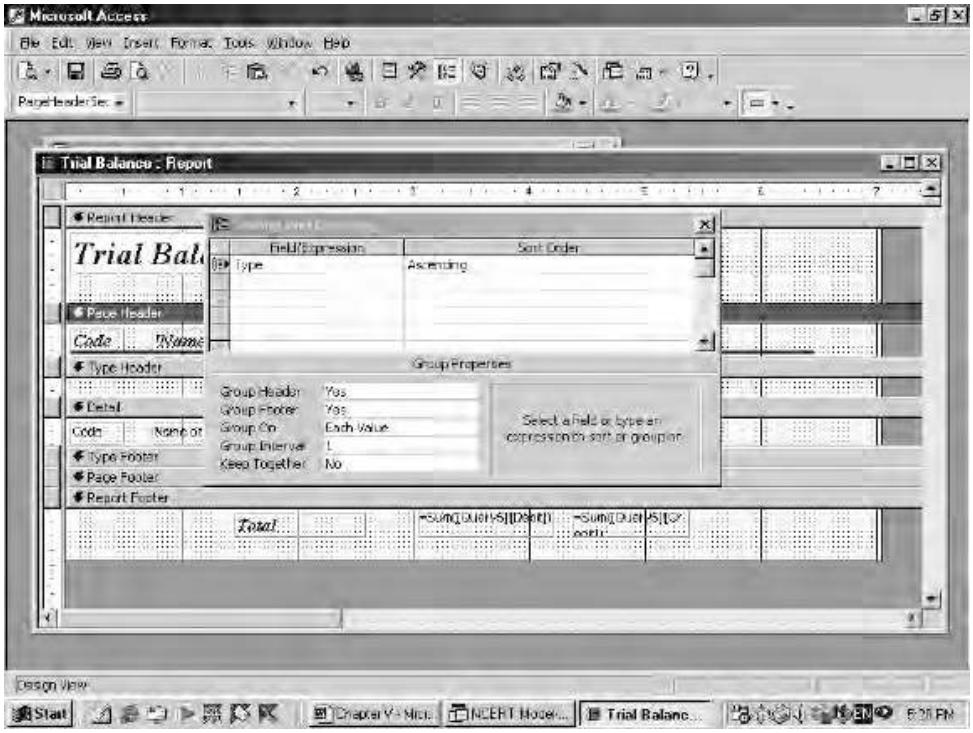


Fig. 15.10 : *Window displaying sorting and grouping dialogue box*

15.5.7 Saving and Exporting a Report

After a report is designed, it may be generated to preview its final shape. Both the design and a generated report are saved for future use and reference. The generated report may also be exported for use by others, as described below:

(a) *Saving and Exporting Report Object in Access* : The design of a report is saved in Access as report object by assigning a particular name. The report object, when opened in access by click action generates the desired report as per design specification. The design may also be exported to another database file of Access. This is achieved by clicking ***File*** **%** ***Export*** and then selecting and existing database into which the report design is to be exported. Access responds by providing a dialog box to give the name by which the exported report is saved in a selected database.

(b) *Saving as Snapshot* : After a report is created, it may be saved in such a manner so as to be viewed by others without the help of Access. This becomes possible by saving the report as a snapshot file. As a result, a high quality picture image of each page of report is created with Adobe Acrobat software. Other users of the report can then view the report and print any of its pages without being able to modify its contents. It must be ensured that this feature of saving a report as snapshot is also installed while installing the MS Office 2000 package. In order to create a report Snapshot, following steps are required :

- Select and generate a report in Database Window.
- Click ***File % Export*** from menu bar. An Export Report dialog box appears.
- Choose the folder from combo box next to ***Save in***; provide a file name; select snapshot from list control next to ***Save as*** type and click at ***Save*** button. While saving the report ensure that the auto start check box is enabled.
- The generated report is saved as a snapshot and can be supplied to others for printing and viewing without the help of the Access database environment.

(c) *Exporting to Excel* : A generated report may be exported to Excel, which is a spreadsheet package. This software package is a part of MS Office product and is generally installed while installing MS Access. A report is exported to Excel by following the same steps as have been listed above while saving a report as snapshot, except that before clicking save button in (c) above, one has to select Microsoft Excel 2000/2002 from list control next to *Save as* type.

(d) *Exporting to MS Word* : A report generated using Access can also be exported to MS word, which is a text processing package. This package is also installed while installing MS Access, as a part of MS Office. In order to export a report to MS Word, the following steps are required :

(i) Select and generate a report in Database Window.

(ii) If print preview tool bar is absent in Access window, Click ***View % Tool bars % Print preview*** from menu bar of Access. Access responds by providing print preview tool bar for reports.

(iii) Click at right corner of icon for Official Links. There are three options in the list: Merge It with MS Word, Publish It with MS Word and Analyse It with MS Excel.

(iv) Click ***Publish it with MS Word***, which is also the default option.

(v) The generated report is exported to MS Word package and can be dealt with like any other document created using MS Word.

(e) *Printing a Report* : A generated report may also be printed by taking the following steps provided a printer attached to the computer is installed.

(i) Choose ***File*** from menu bar **% *Print***

(ii) Access responds by providing a print window, which allows the user to select a printer, the number of copies to be printed and also the range of pages to be printed.

(iii) Properties button is clicked to define print quality under set-up tab and orientation under paper tab. Two-sided printing may also be obtained if the printer supports this feature.

(f) *E-Mailing a Report* : A report generated by Access may also be sent using E-Mail facility, provided the computer system has Internet facility and is connected to the Mail Server of the Internet Service Provider (ISP). In order to send a report using E-mail facility, following steps are required :

(i) Select and generate a report in Database Window

(ii) Click at ***File* % *Send-To* % *Mail recipient*** from Menu bar of Access. A Send dialog box appears with various options for choosing the Format: Microsoft Excel, HTML, Snapshot format, Rich Text format, etc.

(iii) Choose an appropriate format and click ***OK.*** Access responds by providing an E-Mail composition window.

(iv) Fill up the details regarding E-mail address of recipient and others to whom copy of report is to be sent; provide a subject to E-mail and click at Send button. The report gets dispatched to the mailbox of the recipient of E-mail.

Test Your Understanding

Fill in the blanks

(a) Reports, the need for which is not anticipated is called .....reports.

(b) .....query does not involve use of any query function to produce a summary of data.

(c) ..... query prompts the user to enter criteria for selecting a set of records.

(d) .....clause is used to specify the fields to display data or information.

(e) ..... is meant to include page number, data and time of report.

(f) The purpose of ..... is to organise the information of report into categories whereas ..... arranges information into numerical or alphabetical order.

(g) When saved as ....., the contents of reports can not be modified by the user.

15.5.8 Designing Accounting Reports using Access

Financial Accounting Reports such as Cash book, Bank book, Ledger Accounts and Trial Balance may be generated in Access by adhering to report generation process. The exact process in the context of each of these reports is described below :

Trial Balance

The Trial Balance is one of the accounting reports, which provides the net amount by which each account, during a given period of time, has been debited or credited. The format of a typical trial balance is as given below :

Trial Balance

Account Title	*L.F.*	*Debit* Amout *Rs.*	*Credit* Amount *Rs.*
Total			

Fig. 15.11 : *Format of trial balance*

To produce a trial balance, it is necessary to retrieve a set of processed data records each of which provides information on Code (or Account Number), Name of Account (or Particulars), Debit balance and Credit balance with reference to a each account. In order to find net balance corresponding to every account along with its identity, following steps are taken :

(i) To find the total amount by which every account has been debited;
(ii) To find the total amount by which every account has been Credited;
(iii) To find a collective record set of accounts with their debit and credit totals;
(iv) To find the net amount with which every account has been debited or credited; and
(vi) To find the record set which consists of Account code, name of Account, Debit and Credit Amount.

Above steps to produce trial balance are transformed into a series of SQL statements, which vary according to the database design. The details of the above procedure along with the relevant SQL statements need be explained in the context of the three Models as given below :

Model-I : The following series of SQL statements retrieve a record set for producing trial balance when database design for Model-I is used.

(a) *To find the total amount by which the accounts have been debited* : In order to ascertain the total amount by which every transacted account has been debited, the SELECT clause need to have two fields: *one* code to identify the transacted account and *another* to generate the total by which such account has been debited. This is achieved by using Debit field of ***Vouchers*** table and finding the sum of amount corresponding to each of the transacted accounts. The FROM clause relies upon ***Vouchers*** table to get the data source. The GROUP BY clause specifies the field on the basis of which grouping of record set is formed. This grouping is necessary in SQL when aggregate query is used to generate summary information. The summing of amount is obtained by using aggregate function, Sum( ). This function, as already explained, uses a field with data type Number, as an input argument and returns its sum as output. Accordingly, the following SQL statement is formed :

SELECT Debit **AS** Code, **Sum(**amount**) AS** Total
FROM vouchers
GROUP BY debit;

In the above SQL statement, the GROUP BY clause retrieves the rows of vouchers table accounts-wise because the debit field refers to account code. As a result, the Sum( ) computes the sum of amount of a particular debit account and reports against Debit account of SELECT clause. This SQL statement is saved as Query 01for its subsequent use. The total of debit amount in this query is given by Total field with positive amounts.

(b) *To find the total amount by which the accounts have been credited* : In order to ascertain the total amount by which every transacted account has been credited, a query similar to that in (a) need be formed, except that the Debit field in SELECT and GROUP BY clause is substituted by Credit field. The sum of amount generated by sum(Amount) is multiplied by -1 so that the final amount assigned to Total field is always negative. This is because the amount of credit must be a negative amount if amount of debit is taken as positive. The purpose of using negative values is to differentiate between debit and credit totals for each account and also to facilitate the simple arithmetic summation for obtaining the net amount. Accordingly, the following SQL statement is formed :

SELECT Credit **AS** Code, **Sum(**Amount**)***(-1) **AS** Total
FROM vouchers
GROUP BY Credit;

This SQL statement is saved as Query 02 to be used as source by next query.

(c) *To generate a collective record set of accounts with their debit and credit totals* : Every transacted account that has been debited (or credited) only appears once in this collective record set. However, those transacted accounts that have been debited as well as credited appear twice in this record set: once with a positive amount and thereafter with a negative amount. This collective record set is generated by executing a UNION query between Query 01 and Query 02.

```
SELECT*
FROM Query 01
UNION SELECT*
FROM Query 02 ;
```

This SQL statement is saved as Query 03 for further processing of its resultant record set.

(d) *To generate the net amount with which an account has been debited or credited* : Once the records of account codes with debit and/or credit totals have been collected, the next logical step is to find out the net amount by which such accounts have been either debited or credited. This is accomplished by forming another aggregate query in which FROM clause uses Query 03 as the data source. The sum of Total for each Code of data source, provided by Query 03, results in computing net amount for every account. Accordingly, the following SQL statement is formed to generate a list of account codes with their respective balances: positive or negative.

```
SELECT Code, Sum(Total) AS Net
FROM Query 03
GROUP BY Code;
```

A positive net amount implies a debit and negative amount means a credit balance corresponding to an account code. This is because in Query 02, the total of credit amount has been made to appear as negative. This query is saved as Query 04 for its subsequent use in generating record set for trial balance.

(e) *To find that record set which consists of account code, name of account, debit amount and credit amount* : Every row of a trial balance report consists of Account Code, Name of Account, Debit Amount and Credit Amount. The Debit Amount and Credit Amount are mutually exclusive. Such rows are obtained by generating a record set based on the following SQL statement.

```
SELECT a.Code, b.name AS [Name of Account], IIF
(a.Net>0,a.Net,null) AS Debit,
IIF (a.Net<0,abs(a.Net) ,null) AS Credit
FROM Query 04 AS a, Accounts AS b
WHERE a.code = b.code ;
```

In the above SQL statement, the results of Query 04 and data stored in Accounts table has been used. The SELECT clause of this SQL statement has two computed fields as explained below :

- IIF(a.Net>0,a.Net,null) AS Debit: According to IIF( ) function, if the net amount exceeds zero, it is displayed as Debit, otherwise nothing appears in Debit field.
- **IIF**(a.Net<0,abs(a.Net) ,null) AS Credit: According to IIF( ) function, if the net amount is less than zero (implying negative), it is displayed as Credit, otherwise nothing appears in Credit field.

Besides, the other two fields: Code and Name, of SELECT clause are retrieved from Query 04 and Accounts table respectively. This SQL statement is saved as Query 05 for providing the necessary information content for Trial Balance Report.

***Model-II* :** The following series of SQL statements retrieve the record set for producing trial balance when database design for Model-II is used. In addition to this, the accounts have been categorised within the trial balance according to the Account Type: Expenses, Revenues, Assets and Liabilities.

(a) *To find the total amount by which the accounts have been debited* : The transacted accounts in design of Model-II have been stored in AccCode of VouchersMain and Code of VouchersDetail. The following SQL statement is formed to generate the relevant information from VouchersDetails.

```
SELECT Code, Sum(amount) AS Total
FROM vouchersMain INNER JOIN vouchersDetails ON
VouchersMain.Vno = VouchersDetails.Vno
WHERE Type = 0
GROUP BY Code ;
```

Similarly, the following SQL statement is formed to generate the required information from VouchersMain table.

```
SELECT AccCode As Code, sum(amount) AS Total
FROM vouchersMain INNER JOIN vouchersDetails ON
VouchersMain.Vno = VouchersDetails.Vno
WHERE Type = 1
GROUP BY AccCode ;
```

Both the SQL statements are meant to extract similar sets of records, but from two different sources. Therefore, the resultant record set of these SQL statements have been horizontally merged using UNION clause as shown below:

```
SELECT Code, sum(amount) AS Total
FROM vouchersMain INNER JOIN vouchersDetails ON
VouchersMain.Vno = VouchersDetails.Vno
WHERE Type = 0
GROUP BY Code
```

```
UNION ALL
SELECT AccCode As Code, sum(amount) AS Total
FROM vouchersMain INNER JOIN vouchersDetails ON
VouchersMain.Vno = VouchersDetails.Vno
WHERE Type = 1
GROUP BY AcCode ;
```

The above SQL statement is saved as Query101for its subsequent use. The total of debit amount in this query represents the Total with positive amounts.

(b) *To find the total amount by which the accounts have been credited* : In order to ascertain the total amount by which every transacted account has been credited, a query similar to that in (a) need be formed. This is achieved by substituting Debit field in SELECT and GROUP BY clause by Credit field and the sum of amount generated by sum(Amount) is multiplied by-1 so that the final amount assigned to Total field is always negative. Accordingly, the following SQL statement is formed :

```
SELECT Code, sum(amount)*-1 AS Total
FROM vouchersMain INNER JOIN vouchersDetails ON
VouchersMain.Vno=VouchersDetails.Vno
WHERE Type=1 GROUP BY Code, Amount
UNION
SELECT AccCode As Code, sum(amount)*-1 AS Total
FROM vouchersMain INNER JOIN vouchersDetails ON
VouchersMain.Vno=VouchersDetails.Vno
WHERE Type=0 GROUP BY AccCode, Amount;
```

I*n the above SQL statement, the sum of amount has been multiplied by* -1 to ensure that the amount of credit is always negative just as amount of debit is taken as positive. This query is saved as Query102 for its subsequent use.

(c) *To find a collective record set of accounts with their debit and credit totals*: A collective record set is generated by forming a union query between Query101 and Query102 to ensure that the debit and credit amount with respect to each account becomes available for generating the net amount. Accordingly, the following SQL statement is formed.

```
SELECT*
FROM Query101
UNION Select*
FROM Query102;
```

The above SQL statement causes horizontal merger of record sets returned by Query101 and Query102. This SQL Statement is saved as Query103 for its subsequent use in next query.

(d) *To find the net amount with which an account has been debited or credited*: To generate the net amount, an SQL statement similar to Query04 (designed for query (d) of Model-I) above, is formed as shown below, except that its source of data is Query103 instead of Query 03.

```
SELECT Code, Sum(Total) AS Net
FROM Query103
GROUP BY Code;
```

This query is saved as Query104 for its subsequent use in generating a record set, giving details of information for trial balance.

(e) *To find the record set which consists of Account code, Name of Account, Debit Amount and Credit Amount* : This query, which is meant to provide relevant information to the trial balance report, is similar to Query 05 (designed and discussed in (e) of Model-I). Accordingly, the following SQL statement is formed by changing the source of data from Query 05 to Query105 as shown below :

```
SELECT a.Code, b.name AS [Name of Account], IIF(a.Net>0,a.Net,null) AS
Debit, IIF(a.Net<0,abs(a.Net) ,null) AS Credit FROM Query104 AS a,
Accounts AS b/
WHERE a.code = b.code;
```

In above SQL statement, the results of Query104 and data stored in accounts table has been used. This SQL statement is saved as Query105 for providing source of information to Trial Balance Report.

Trial Balance with Sorting and Grouping levels : In order to prepare a trial balance with all the account duly grouped by and sorted within category of accounts, two additional queries (f) and (g) are required.

(f) *To find the record set of accounts with their category and category ID :* Accounts table is related to AccountType table vide Type field. The following SQL statement, using INNER JOIN clause, is formed to retrieve the relevant fields for various accounts.

```
SELECT Accounts.Code, Accounts.Name, Category, CatId FROM Accounts
INNER JOIN AccountType ON
Accounts.Type = Account type.CatId;
```

This SQL statement is saved as Query 106 for its subsequent use in next query.

(g) *To find the record set consisting of Account Code, Name of Account, Debit Amount and Credit Amount along with category details* : This query, when compared with (e) above, reveals that two additional fields: **Category** and

CatId are required. Accordingly, the SQL statement stored as Query105 is modified by substituting Accounts table with Query106 to form the following Statement.

```
SELECT a.Code, b.name AS [Name of Account],
IIF(a.Net>0,a.Net,null) AS Debit, IIF(a.Net<0,abs(a.Net) ,null) AS Credit,
Category, CatId
FROM Query104 AS a, Query106 AS b
WHERE a.code = b.code ;
```

This SQL statement is saved as Query107 to provide information details for designing trial balance with grouping and sorting of the accounts.

15.5.9 Procedure in Access for Designing a Simple Trial Balance

The Trial Balance is generated using the ***Design View*** method by following the steps listed below :

(i) Select ***Reports*** from objects list provided by LHS of Database Window and click at ***New*** object button of tool bar. Access responds by displaying the New Report Window as shown in figure 15.8 Choose Design View from list of methods and Query 05 from combo control meant to provide data source to the report. Click ***OK*** after choosing method and data source of report.

(ii) Access responds by displaying a blank report design divided horizontally into three sections: Page Header, Detail and Page Footers. Besides, a list of available fields of Query 05 is also provided for embedding on to this blank design of report.

(iii) Alternatively, double click at ***Create report in design view***. Access respond by displaying a blank report design duly divided into three sections as stated above. Right Click at the left most corner point of report design where horizontal and vertical rulers converge. Click at Properties of report and select Data tab to define the record source as Query 05. Immediately, there appears as list of available fields of Query 05 so as to be placed on to blank design of report.

(iv) Right click at any part of the report design and choose Report Page Header and Footer. Access responds by providing two more sections: Page Header and Page Footer.

(v) Click at the icon for tool bar and pick up a label control to be placed at Page Header Section and assign set its caption property to ***Trial Balance***, Font Size to 16, Font colour to Blue, Text align to Left and Font weight to Bold.

(vi) Select all the fields of Query 05 by clicking at every field while keeping the ***Ctrl key*** pressed. Drag and drop the selected fields on Details section. It may be noted that each of the dropped fields has two controls: Label and Text. The former gives caption and the latter provides the data content.

(vii) Select the label controls of all the four fields by clicking at each while keeping the ***Shift Key*** pressed. Right click at selected label controls and choose ***cut***. Place the mouse at Page Header section and ***paste*** these controls.

(viii) Re-arrange these label controls to appear as headings of columns for trial balance as: Code, Name of Account, Debit and Credit. Select all these label controls and right click to choose properties. Access provides Properties of these controls. Choose format tab and set the Font weight Property to Bold; Font Size to 10; Font colour to Blue and Text align to Centre.

(ix) Align the Text controls in Detail section to appear just below each of the respective label controls appearing in Page Header section.

(x) Select the Text controls and Debit and Credit field and modify their properties by setting Decimal Places to Zero and Format to Standard.

(xi) Pick up a label control from tool box by click action and place at Report Footer section, at the area vertically below the column "Name of Accounts" and give the caption "Total". Set its Text align property to Centre, Font weight property to Bold and Font Size to 10.

(xii) Pick up a text control and place it at Report Footer section at the area vertically below Debit column. Set its Record source property as expression given below :

= Sum ([Query 05]![Debit])

The expression is written by clicking at (...) to call the expression pane. The expression [Query 05]![Debit] within Sum( ) function refers to Debit field of Query 05.

(xiii) Pick up another text control and place it at Report Footer section at the area vertically below Credit column. Set its Record source property as expression given below.

=Sum ([Query 05]![Credit])

The expression is written in the manner as it applies to sum of debit column. The expression [Query 05]![Credit] within Sum( ) function refers to Credit field of Query 05.

The report design prepared above is saved as Trial Balance by Design. The Trial Balance report design appears on the RHS of Database Window as object under Reports.

15.5.10 Designing of Trial Balance with Sorting and Grouping

To design a trial balance with grouping and sorting of accounts, the following additional steps are required.

(i) Copy the trial balance design as created above and paste it with different name say "Trial balance with Grouping". Open this copied report design for modification in design view to incorporate the grouping and sorting of accounts in trial balance report.

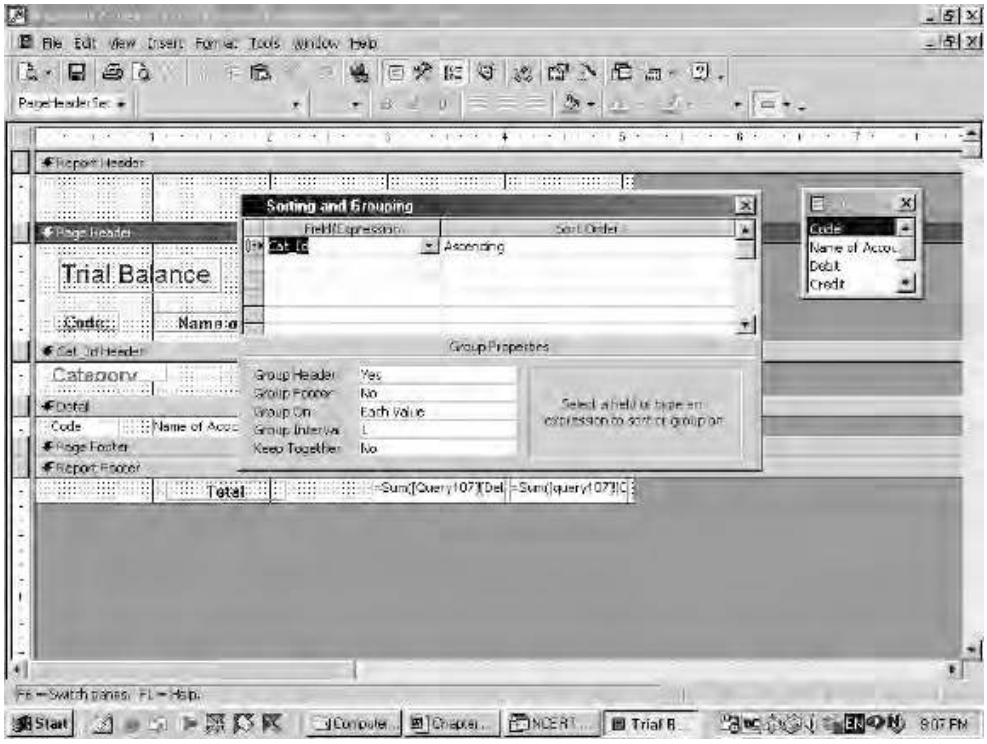


Fig 15.12 : *Window displaying sorting and grouping dialog*

(ii) Change the data source property of report design by right click at the top left corner of report design % click at properties % Choose Tab and set the Record source property as Query107.

(iii) Modify the Record source of Text controls for sum of debit and credit columns to replace existing expressions by

= Sum ([Query107]![Debit]) ..... for Debit
= Sum ([Query107]![Credit]) ..... for Credit

(iv) Right click at report design % click at sorting and grouping. Access responds by providing a window for sorting and grouping as shown in figure 15.12

(v) Define the basis of grouping as CatId in field/expression and its sort order set to ascending. Set the Group Header property to ***Yes.*** Access responds by inserting CatId Header section in report design.

(vi) Click at field list icon and drag and drop category field in CatId Header section. Set its Font Size property to 10, Fore Colour property to Dark Green and Font Weight property as Bold.

Save the modifications in the above report design. The trial balance report is generated by double click at this or the previous object. The generated trial balance may be saved or exported as desired.

Key Terms Introduced in the Chapter

- MS Access
- Accounting Report
- Compound Vouchers
- Database Management System
- Transaction Vouchers
- Queries

Summary with Reference to Learning Objectives

1. *Accounting Reports* : A report displays information that is acquired from data processing and transformation in an organised manner. Reports tend to reduce the level of uncertainty associated with decision-makers and also influence their positive actions. The output of the computerised accounting system are accounting reports. Financial accounting reports such as Cash book, Bank book, Ledger, and Trial Balance may be generated in Access by adhering to report generation process.
2. *Using Access for Producing Reports* : In Access, the reports are created by designing a report, identifying its information requirement, creating the queries in SQL to generate such information so that the final SQL statement provides the record set of information to the report design. Different Models of database design require different sets of SQL statements to produce different types of reports.
3. *Queries Access* : There are several types of queries in Access that may be used to generate information. Such queries are called select queries because they are used to select records from the given set of records. There are three ways in which these queries may be created in Access: Wizard, Design View and SQL View method.
4. *Designing Reports in Access* : A report in Access may be designed in three ways: Auto Report, Wizard and Design View method. A SQL statement (or query) is capable of displaying records containing fields from across a number of data tables. A typical report in Access has the structure that consists of Report header, Page header, Group header, Details, Group footer, Page footer and Report footer.

Questions for Practice

Short Answers

1. State what do you understand by accounting reports.
2. What do you mean by programmed or casual reports?
3. With the help of an example, briefly state the meaning of parameter queries.
4. Briefly state the purpose of functions in SQL environment.
5. Briefly explain in steps the method of creating a query, using wizard.
6. List the structure of a good report created in Access.
7. List the ways to refine the design of a report.
8. Briefly explain the purpose of grouping and sorting of the data as a means to refine a report.
9. What do you understand by saving a report as snapshot?
10. State the procedure for creating ledger in MS Access.

Long Answers

1. Describe and discuss the procedure of creating the receipts side of a cash book.
2. Discuss the concept of accounting reports? Explain the three steps involved in creating such reports.
3. Discuss with a set of inter-related data tables, the basics of creating queries in MS Access?
4. Briefly explain the set of SQL statements to produce the receipts side of a cash book for Model-I.
5. Describe in steps the design view method to create a query in MS Access?
6. Discuss the SQL view method of creating a query?
7. Describe the ways to refine the design of a report.
8. Explain the data base design for Model-I for producing the receipts the series of SQL statements for producing the payment side of cash book for Model-II.
9. Describe the series of SQL statements to produce trial balance data base design for Model-II is used.
10. Using Model-III discuss the series of SQL statements to produce a trial balance up to a particular date.

Project Work

1. Payroll Accounting: Using the database design given in Exercise of Chapter-IV, as Project No: 1, you are required to generate the portion of payroll according to the specified format under MS Access environment.
2. Financial Accounting: Write the SQL statements for each of the following queries separately by using database design of accounting specified as Model-I, II and III in Chapter-IV.
   (a) List the transactions details of Accounts, which have been debited during the period April 01, 2001 to September 30, 2001.
   (b) List the transactions details of accounts which have been credited during the month of August 2001.
   (c) Find the total expenses incurred during the period September, 2001.
   (d) List all the transacted accounts with the amounts by which they have been debited and also the amount with which they have been credited.
   (e) List the amount of expenses authorised by each of the employees.

3. Inventory Accounting: Using the database design developed in Exercise of Chapter-IV, for Project No: 2, you are required to generate Statement of closing stock in the following format by assuming that all goods are sold at a profit of 25% on purchase price.

Statement of Closing Stock

Particulars		*Purchases*		*Sales*		*Balance*	
Code	*Item Name*	*Qty*	*Amount*	*Qty*	*Amount*	*Qty*	*Balance*

4. Inventory Accounting: Using the database design developed in Exercise of Chapter-IV, for Project No: 2, Write the SQL statements for each of the following queries :
   (a) List out the Invoice No, Date and amount of sales made during the month of October, 2002.
   (b) Make a list of Invoice No, Date and amount of Purchases during the period April 01, 2002 to October 31, 2002.
   (c) List items wise the quantity sold during the month of September 2002
   (d) Find the Minimum and Maximum rate at which each item of goods has been purchased during the period April 01, 2002.
   (e) Make a list of physical quantity of each item in stock.

Checklist to Test Your Understanding

(a) Casual
(b) Simple
(c) Parameter
(d) SELECT
(e) Design view
(f) Sorting
(g) Snap shot

APPENDIX

Description of Commonly Used Functions in Access

There are three types of functions that are used to set the Control Source property of calculated controls and/or to form part of calculated field expression in SQL statement. A brief description of the commonly used functions is below :

A-1. Domain Aggregate Functions

These functions are used to perform calculations based on values in a field of a table or query. Criteria to select the set of records in the table or query that is desired to be used for calculations may also be specified. The criteria, if not specified, imply that all the records of the table or query specific to the field are used for computation. All the domain aggregate functions use the same syntax as is given hereunder :

DFunction ("FldName", "TblName" or QryName", "SrchCond")

Wherein DFunction refers to a named domain aggregate function. A brief description of its input arguments is given below:

FldName : It refers to the name of field that is to be searched in a table or query, which is specified as an argument.

TblName (or QueryName) : It refers to the name of a table or query that contains the field specified as second input argument.

SrchCond : It refers to the search condition on the basis of which the relevant record is searched.

Some of the important domain aggregate functions have been described as below :

(a) DLookup : This function is meant to look up information that is stored in a table or query, which is not the underlying source of Access Form or Report. It is used to set the Control Source property of a calculated control to display data from other table or query. Consider the following example:

DLookup ("Name", "Accounts", "Code = '110001'")

In the above example, this function has been applied to search the name of account (in Accounts table) whose code is '110001'.

(b) DMax and DMin : These functions are used to retrieve respectively the maximum and minimum values in the specified field. Consider the following example :

DMin ("Amount", "Vouchers", "Debit = '711001'")

Dmax ("Amount", "Vouchers", "Debit = '711001'")

In the above examples, the amount of minimum purchase transaction and maximum purchase transaction is retrieved and reported. It may also be noted that '711001' is the code of Purchase account in Accounts table

(c) DSum : This function computes and returns the sum of the values in the specified field or expression. For Example, in a table : ***Sales*** that contains

ItemCode, Price and Quantity as fields, the total amount of *sales* may be computed by using the DSum () function as follows :
DSum ("Price*Quantity", "Sales")
However, if the total sales is to computed for a particular item coded as 1678, the DSum () function shall be applied as follows :
DSum ("Price*Quantity", "Sales", "ItemCode = 1678")

(d) DFirst and DLast : These functions are used to retrieve respectively the values in the specified field from first and last physical records.
Consider the following application examples :
DFirst ("Name", "Accounts")
DLast ("Name", "Accounts")
In the above examples, the name first and last account that physically exists in Accounts table is retrieved and reported.

(e) DCount : This function is meant to compute the number of records with non-null values in the specified field. Consider the following application example :
DCount ("*", "Accounts")
In the above example, The number of records in accounts table are counted and reported by DCount () function.

A-2. SQL Aggregate Functions

The SQL aggregate functions have the functionality similar to that of domain aggregate function. However, unlike domain aggregate functions, these functions cannot be called directly into controls used in Forms and Reports of Access. These functions are used in SQL statements that provide the underlying record source of Forms and Reports. All these functions, when used require the GROUP BY clause in SQL statement :

(a) Sum : This function is used to compute and return the sum of a set of values. For Example, consider the following SQL statement that has been used in Chapter-V to prepare the underlying information source of Trial Balance (Model-I.).

```
SELECT Debit As Code, Sum (Amount) As Total
FROM VOUCHERS
GROUP By Debit ;
```

In the above SQL statement, Sum () has been used to compute the total amount by which the transacted accounts have beeen debited.

(b) Min and Max : These functions are used to retrieve respectively the minimum and maximum of value set with respect to field or query expression. For Example, the following SQL statement is capable of returning the amount of minimum and maximum sales transaction in Model-I :

```
SELECT Min (Amount) As MinSales, Max (Amount) As MaxSales
FROM Vouchers
WHERE Credit = '811001' ;
```

It may be noted that the sales account that is coded as '811001' is credited as and when a sales transaction is recorded.

(c) Count : This function counts the number of records returned by a query. The number of times a sales transaction has occurred and recorded in books of accounts can be known by executing the following SQL statement.

SQL statement.
SELECT count (*)
FROM Vouchers
WHERE Credit = '811001'

In the above SQL statement, the Credit field stores the account code of sales when a sales transaction occurs. The WHERE clause restricts the number of records returned by the above SQL to those in which credit field has the account code of sales. Accordingly, the count () function returns the count value of records returned by the above SQL statement.

(d) First and Last : These functions are meant to retrieve the first and last record of a value set pertaining to a field or query expression.

A-3. Other Functions

(a) IIF : The purpose of this function is to provide a value to the field from a mutually exclusive set of values. Its syntax is as given below :
IIIF (<Condition>, Value-1, Value-2)
Wherein <Condition> refers to any logical expression in which a comparison is made by using following comparison operators :
= equal to
<less than
>greater than
<= less than or equal to
>= greater than or equal to
The condition formed by the above comparison operators is evaluated to result into TRUE or FALSE.
<Value-1> This value is returned by IIF() function to the field, if the condition turns out to be TRUE
<Value-2> This value is returned by IIF() function to the field, if the condition turns out to be FALSE
Example : Suppose a field Type is to return the string of characters "Debit" when its value is 0 and "Credit" when its value is 1, IIF() function is used as shown below :
IIF (Type = 0, "Debit", "Credit")

(b) Abs : The purpose of this function is to return absolute value, This function receives a numeric value as its input argument and returns an absolute value. Consider the following examples on use of Abs ( ) function :
When – 84 is given as input argument to Abs(– 84), it returns 84
When 84 is given as input argument to Abs(84), it returns 84

(c) Val : The purpose of this function is to return the numbers contained in a string as a numeric value of appropriate type. Its Syntax is **Val**(string)
The string argument of the above Val( ) function is any valid string expression. The Val( ) function stops reading the string at the first character that cannot be recognised as number. For example, Val("12431") returns the value 12431 by converting the enclosed string of numerals into value. However, Val ("12,431") returns the numeric value 12 because comma after 12 in the enclosed string of characters in Val ( ) function is not recognised as number.

Financial Statements - I

9

LEARNING OBJECTIVES

After studying this chapter, you will be able to :

- *state the nature of the financial statements;*
- *identify the various stakeholders and their information requirements;*
- *distinguish between the capital and revenue expenditure and receipts;*
- *explain the concept of trading and profit and loss account and its preparation;*
- *State the nature of gross profit, net profit and operating profit;*
- *describe the concept of balance sheet and its preparation;*
- *explain grouping and marshalling of assets and liabilities;*
- *prepare profit and loss account and balance sheet of a sole proprietory firm; and*
- *make an opening entry.*

You have learnt that financial accounting is a well-defined sequential activity which begins with Journal (Journalising), Ledger (Posting), and preparation of Trial Balance (Balancing and Summarisation at the first stage). In the present chapter, we will take up the next step, namely, preparation of financial statements, and discuss the types of information requirements of various stakeholders, the distinction between capital and revenue items and its importance and the nature of financial statements and the preparation thereof.

9.1 Stakeholders and Their Information Requirements

Recall from chapter I (Financial Accounting Part I) that the objective of business is to communicate the meaningful information to various stakeholders in the business so that they can make informed decisions. A stakeholder is any person associated with the business. The stakes of various stakeholders can be monetary or non-monetary. The stakes can be active or passive; or can be direct or indirect. The owner and persons advancing loan to the business would have monetary stake. The government, consumer or a researcher will have non-monetary stake in the business. The stakeholders are also called users who are normally classified as *internal* and *external* depending upon whether they are inside the business or outside the business. All users have different objectives for

joining business and consequently different types of information requirements from it. In nutshell, the various users have diverse financial information requirements from the business.

For example we have classified the following into the category of internal and external users specifying their objectives and consequent information requirements.

Name	*Internal/ External users*	*Objective for participating in business*	*Accounting Information requirements*
Current owners	Internal	To make investment in the business and wealth grow.	Likes to know extent of profit in the last accounting period, current position of the assets/liabilities of the business.
Manager	Internal	For a career. They essentially act as the agent of owners (their employers).	Accounting information in the form of financial statements is like their report card and they are interested in information about both profits and financial position.
Government	External	Its role is regulatory and tries to lay down the rules in the best public interest.	Its concerns are that the rights of all stakeholders are protected. Since the government levies taxes on the business, they are interested in information about profitability in particular besides lot of other information.
Prospective owner	External	He is expecting to make investments in the business with a view to make his investment and wealth grow.	He is interested in information about past profits and financial position as indicative of likely future performance.
Bank	External	Bank is interested in safty of the principal as well as the periodic return (interest).	Bank is interested in adequacy of profits only as an assurance of the return of principal and interest back in time. Bank is equally concerned about the form in which the assets are held by the business. When more assets are held in cash or near cash form, the aspect is knnown as liquidity.

Fig. 9.1 : *Analysis of various users of accounting information*

Box 1

Accounting Process (up to Trial balance) :

1. Identify the transactions, which that are recorded.
2. Record transactions in journal. Only those transactions are recorded which are measured in money terms. The system followed for recording is called double entry system whereby two aspects (debit and credit) of every transaction are recorded. Repeated transactions of same nature are recorded in subsidiary books, also called special journals. Instead of recording all transactions in journal, they are recorded in subsidiary books and the journal proper. For example, the business would record all credit sales in sales book and all credit purchases in purchases book. The other examples of subsidiary books are return inwards book, return outwards book. An other important special book is cash book, in which all cash and bank transactions are recorded. The entries, which are not recorded in any of these books, are recorded in a residual journal called *journal proper*.
3. The entries appearing in the above books are posted in the respective accounts in the ledger.
4. The accounts are balanced and listed in a statement called *trial balance*. If the total amounts of debit and credit balances agree, accounts are taken as free from arithmetical errors.
5. The trial balance forms the basis for making the financial statements, i.e. trading and profit and loss account and balance sheet.

9.2 Distinction between Capital and Revenue

A very important distinction in accounting is between capital and revenue items. The distinction has important implications for making of the trading and profit and loss account and balance sheet. The revenue items form part of the trading and profit and loss account, the capital items help in the preparation of a balance sheet.

9.2.1 Expenditure

Whenever payment and/or incurrence of an outlay are made for a purpose other than the settlement of an existing liability, it is called expenditure. The expenditures are incurred with a viewpoint they would give benefits to the business. The benefit of an expenditure may extend up to one accounting year or more than one year. If the benefit of expenditure extends up to one accounting period, it is termed as *revenue expenditure*. Normally, they are incurred for the day-to-day conduct of the business. An example can be payment of salaries, rent, etc. The salaries paid in the current period will not benefit the business in the next accounting period, as the workers have put in their efforts in the current accounting period. They will have to be paid the salaries in the next accounting period as well if they are made to work. If the benefit of expenditure extends to more than one accounting period, it is termed

as *capital expenditure*. An example can be payment to acquire furniture for use in the business. Furniture acquired in the current accounting period will give benefits for many accounting periods to come. The usual examples of capital expenditure can be payment to acquire fixed assets and/or to make additions/extensions in the fixed assets.

Following points of distinction between capital expenditure and revenue expenditure are worth noting :

(a) Capital expenditure increases earning capacity of business whereas revenue expenditure is incurred to maintain the earning capacity.
(b) Capital expenditure is incurred to acquire fixed assets for operation of business whereas revenue expenditure is incurred on day-to-day conduct of business.
(c) Revenue expenditure is generally recurring expenditure and capital expenditure is non-recurring by nature.
(d) Capital expenditure benefits more than one accounting year whereas revenue expenditure normally benefits one accounting year.
(e) Capital expenditure (subject to depreciation) is recorded in balance sheet whereas revenue expenditure (subject to adjustment for outstanding and prepaid amount) is transferred to trading and profit and loss account.

Sometimes, it becomes difficult to correctly *demarcate* the expenditures into revenue and capital category. In normal usage, the advertising expenditure is termed as revenue expenditure. However, a heavy expenditure on advertising on launching a product is likely to give benefit for more than one accounting period, as people are likely to remember the advertisement for a slightly longer period. Such revenue expenditures, which are likely to give benefit for more than one accounting period, are termed as *deferred revenue expenditure*.

It must be understood that expenditure is a wider term and includes expenses as well as assets. There is a difference between expenditure and expense. Expenditure is any outlay made/incurred by the business firm. The part of the expenditure, which is perceived to have been used or consumed in the current year, is termed as expense of the current year.

Revenue expenditure is treated as expenses of the current year and is shown in trading and profit and loss account. Hence, salary paid by the business firm is treated as an expense of the current year. Capital expenditures are also ultimately charged to income statement and are spread over to more than one accounting period. Hence, furniture of Rs. 50,000 if expected to be used for 5 years will be treated as expense @ Rs. 10,000 per year. The name given for the expense is depreciation. The treatment of deferred revenue expenditure is same as of capital expenditure. They are also written-off over their expected period of benefit.

9.2.2 Receipts

The similar treatment is given the receipts of the business. If the receipts imply an obligation to return the money, these are capital receipts. The example can be an additional capital brought in by the owner or a loan taken from the bank. Both receipts are leading to obligations, the first to the owner (called equity) and the other to the outsiders (called liabilities). Another example on a capital receipt can be the sale of a fixed asset like old machinery or furniture. However, if a receipt does not incur an obligation to return the money or is not in the form of a sale of fixed asset, it is termed as revenue receipt. The examples of such receipts sales made by the firm and interest on investment received by the firm.

9.2.3 Importance of Distinction between Capital and Revenue

As stated earlier, the distinction between capital and revenue items has important implications for the preparation of trading and profit and loss account and the balance sheet as all items of revenue value are to the shown in the trading and profit and loss account and the items of capital nature in the balance sheet. If any item is wrongly classified, i.e. if any item of revenue nature is treated as capital item or vice-versa, the ascertainment of profit or loss will be incorrect. For example, the revenues earned during an accounting period are Rs. 10,00,000 and the expenses shown are Rs. 8,00,000, the profit shall work out as Rs. 2,00,000. On scrutiny of the details, you find that a revenue item of Rs. 20,000 (an expenditure on repairs of machinery) has been treated as capital expenditure (added to the cost of machinery and debited to machinery account, not to repairs account), and hence, does not form part of the expenses for the period. It means the actual expenses for the period are Rs. 8,20,000 and not Rs. 8,00,000. So, the correct profit is Rs. 1,80,000, not Rs. 2,00,000. In other words, the profit has been over stated. Similarly, if any capital expenditure is wrongly shown as revenue expenditure (for example, purchase of furniture shown as purchases), it will result in under statement of profits, and also an under statement of assets. Thus, the financial statements will not reflect the true and fair view of the affairs of the business. Hence, it is necessary to identify the correct nature of each item and treat it accordingly in the book of accounts. It is also important from taxation point of view because capital profits are taxed differently from revenue profits.

9.3 Financial Statements

It has been emphasised that various users have diverse informational requirements. Instead of generating particular information useful for specific users, the business prepares a set of financial statements, which in general satisfies the informational needs of the users.

The basic objectives of preparing financial statements are :

(a) To present a true and fair view of the financial performance of the business;

(b) To present a true and fair view of the financial position of the business; and

For this purpose, the firm usually prepares the following financial statements:

1. Trading and Profit and Loss Account
2. Balance Sheet

Trading and Profit and Loss account, also known as Income statement, shows the financial performance in the form of profit earned or loss sustained by the business. Balance Sheet shows financial position in the form of assets, liabilities and capital. These are prepared on the basis of trial balance and additional information, if any.

Example 1

Observe the following trial balance of Ankit and signify correctly the various elements of accounts and you will notice that the debit balances represent either assets or expenses/ losses and the credit balance represent either equity/liabilities or revenue/gains.
[This trial balance of Ankit will be used throughout the chapter to understand the process of preparation of financial statements]

Trial Balance of Ankit as on March 31, 2005

Account Title	*L.F.*	*Debit Amount Rs.*	*Credit Amount Rs.*
Cash		1,000	
Capital			12,000
Bank		5,000	
Sales			1,25,000
Wages		8,000	
Creditors			15,000
Salaries		25,000	
10% Long term loan (raised on April 01, 2004)			5,000
Furniture		15,000	
Commission received			5,000
Rent of building		13,000	
Debtors		15,500	
Bad debts		4,500	
Purchases		75,000	
		1,62,000	1,62,000

Analysis of Trial Balance of Ankit as on March 31, 2005

Account Title	*Elements*	*L.F.*	*Debit Amount Rs.*	*Credit Amount Rs.*
Cash	Asset		1,000	
Capital	Equity			12,000
Bank	Asset		5,000	
Sales	Revenue			1,25,000
Wages	Expense		8,000	
Creditors	Liability			15,000
Salaries	Expense		25,000	
10% Long-term loan (raised on April 01, 2004)	Liability			5,000
Furniture	Asset		15,000	
Commission received	Revenue			5,000
Rent of building	Expense		13,000	
Debtors	Asset		15,500	
Bad debts	Expense		4,500	
Purchases	Expense		75,000	
			1,62,000	1,62,000

9.4 Trading and Profit and Loss Account

Trading and Profit and Loss account is prepared to determine the profit earned or loss sustained by the business enterprise during the accounting period. It is basically a summary of revenues and expenses of the business and calculates the net figure termed as profit or loss. Profit is revenue *less* expenses. If expenses are more than revenues, the figure is termed as *loss*. Trading and Profit and Loss account summarises the performance for an accounting period. It is achieved by transferring the balances of revenues and expenses to the trading and profit and loss account from the trial balance. Trading and Profit and Loss account is also an account with *Debit and Credit* sides. It can be observed that debit balances (representing expenses) and losses are transferred to the debit side of the Trading and a Profit and Loss account and credit balance (representing revenues/gains) are transfered to its credit side.

9.4.1 Relevant Items in Trading and Profit and Loss Account

The different items appearing in the trading and profit and loss account are explained hereunder:

Items on the debit side

(i) *Opening stock* : It is the stock of goods in hand at the beginning of the accounting year. This is the stock of goods which has been carried forward

from the previous year and remains unchanged during the year and appears in the trial balance. In the trading account it appears on the debit side because it forms the part of cost of goods sold for the current accounting year.

(ii) *Purchases less returns* : Goods, which have been bought for resale appears as purchases on the debit side of the trading account. They include both cash as well as credit purchases. Goods which are returned to suppliers are termed as purchases return. It is shown by way of deduction from purchases and the computed amount is known as *Net purchases*.

(iii) *Wages* : Wages refer to renumeration paid to workers who are directly engaged in factory for loading, unloading and production of goods and are debited to trading account.

(iv) *Carriage inwards/Freight inwards:* These expenses are the items of transport expenses, which are incurred on bringing materials/goods purchased to the place of business. These items are paid in respect of purchases made during the year and are debited to the trading account.

(v) *Fuel/Water/Power/Gas* : These items are used in the production process and hence are part of expenses.

(vi) *Packaging material and Packing charges* : Cost of packaging material used in the product are direct expenses as it refers to small containers which form part of goods sold. However, the packing refers to the big containers that are used for transporting the goods and is regarded as an indirect expense debited to profit and loss account.

(vii) Salaries : These include salaries paid to the administration, godown and warehouse staff for the services rendered by them for running the business. If salaries are paid in kind by providing certain facilities (called perks) to the employees such as rent free accommodation, meals, uniform, medical facilities should also be regarded as salaries and debited to the profit and loss account.

(viii) *Rent paid* : These include office and godown rent, municipal rates and taxes, factory rent, rates and taxes. The amount of rent paid is shown on the debit side of the profit and loss account.

(ix) *Interest paid* : Interest paid on loans, bank overdraft, renewal of bills of exchange, etc. is an expense and is debited to profit and loss account.

(x) *Commission paid:* Commission paid or payable on business transactions undertaken through the agents is an item of expense and is debited to profit and loss account.

(xi) *Repairs* : Repairs and small renewals/ replacements relating to plant and machinery, furniture, fixtures, fittings, etc. for keeping them in working condition are included under this head. Such expenditure is debited to profit and loss account.

(xii) *Miscellaneous expenses* : Though expenses are classified and booked under different heads, but certain expenses being of small amount clubbed together and are called miscellaneous expenses. In normal usage these expenses are called *Sundry expenses* or *Trade expenses*.

Items on the credit side

(i) *Sales less returns* : Sales account in trial balance shows gross total sales(cash as well as credit) made during the year. It is shown on the credit side of the trading account. Goods returned by customers are called return inwards and are shown as deduction from total sales and the computed amount is known as net sales.

(ii) *Other incomes* : Besides salaries and other gains and incomes are also recorded in the profit and loss account. Examples of such incomes are rent received, dividend received, interest received, discount received, commission received, etc.

9.4.2 Closing Entries

The preparation of trading and profit and loss account requires that the balances of accounts of all concerned items are transferred to it for its compilation.

- Opening stock account, Purchases account, Wages account, Carriage inwards account and direct expenses account are closed by transferring to the debit side of the trading and profit and loss account.

This is done by recording the following entry :

Trading A/c		Dr.
To Opening stock A/c		
To Purchases A/c		
To Wages A/c		
To Carriage inwards A/c		
To All other direct expenses A/c		

- The purchases returns or return outwards are closed by transferring its balance to the purchases account. The following entry is recorded for this purpose :

Purchases return A/c		Dr.
To Purchases A/c		

- Similarly, the sales returns or returns inwards account is closed by transferring its balance to the sales account as :

  Sales A/c Dr.
  To Sales return A/c

- The sales account is closed by transferring its balance to the credit side of the trading and profit and loss account by recording the following entry:

  Sales A/c Dr.
  To Trading A/c

Items of expenses, losses, etc. are closed by recording the following entries:

Profit and Loss A/c Dr.
To Expenses (individually) A/c
To Losses (individually) A/c

Items of incomes, gains, etc. are closed by recording the following entry:

Incomes (individually) A/c Dr.
Gains (individually) A/c Dr.
To Profit and Loss A/c

The posting for closing the seven accounts of expenses and revenues as they appear in the trial balance (in our example 1) are given below:

(i) *For closing the accounts of expenses*

	Trading A/c	Dr.	83,000	
	To Purchases A/c			75,000
	To Wages A/c			8,000
(ii)	Profit and Loss A/c	Dr.	43,500	
	To Salaries			25,000
	To Rent of building			13,000
	To Bad debts			4,500

(i) *For closing the accounts of revenues*

	Sales A/c	Dr.	1,25,000	
	To Trading A/c			1,25,000
(ii)	Commission received A/c	Dr.	5,000	
	To Profit and Loss A/c			5,000

The posting done in ledger will appear as follows :

Purchases Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Balance b/d		75,000		Trading		75,000
			75,000				75,000

Wages Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Balance b/d		8,000		Trading		8,000
			8,000				8,000

Salaries Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Balance b/d		25,000		Profit and Loss		25,000
			25,000				25,000

Rent of Building Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Balance b/d		13,000		Profit and Loss		13,000
			13,000				13,000

Bad Debts Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Balance b/d		4,500		Profit and Loss		4,500
			4,500				4,500

Sales Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Trading		1,25,000		Balance b/d		1,25,000
			1,25,000				1,25,000

Commission Received Account

Dr. **Cr.**

Date	*Particulars*	*J.F.*	*Amount Rs.*	*Date*	*Particulars*	*J.F.*	*Amount Rs.*
	Profit and Loss		5,000		Balance b/d		5,000
			5,000				5,000

As the result of the foregoing discussion, we will now learn how the trading and profit and loss account can be prepared from the trial balance, the format of which is shown in figure 9.2. However, this list is not exhaustive. In real sense, there can be many more of other items, which we will be dealing at the later stage and there you will notice how this format undergoes a change with respect to each one of them.

Trading and Profit and Loss Account of ABC
for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses	*Amount Rs.*	*Revenues/Gains*	*Amount Rs.*
Opening stock	.....	Sales	.....
Purchases	.....		
Wages	.....		
Carriage inwards/	.....		
Freight inwards/cartage			
Gross profit c/d[1]			
Gross loss b/d[2]			
	xxx		xxx
		Gross loss c/d[1]	.....
		Gross profit b/d	.....
Rent/rates and taxes	.....	Inerest received	.....
Salaries	.....		.....
Repairs and renewals	.....	Net loss[2]	
Bad debts	.....		
Net profit[2] (transfered to	.....		
capital account)			
	xxx		xxx

[1,2]*only one item will be shown*

Fig. 9.2 : *A format trading and profit and loss account*

9.4.3 Concept of Gross Profit and Net Profit

The trading and profit and loss can be seen as combination of two accounts, viz. Trading account and Profit and Loss account. The trading account or the first part ascertains the *gross profit* and profit and loss account or the second part ascertains *net profit*.

Trading Account

The trading account ascertains the result from basic operational activities of the business. The basic operational activity involves the manufacturing, purchasing and selling of goods. It is prepared to ascertain whether the selling

of goods and/or rendering of services to customers have proved profitable for the business or not. Purchases is one of the main constituents of expenses in business organisation. Besides purchases, the remaining expenses are divided into two categories, viz. *direct expenses and indirect* expenses.

Direct expenses means all expenses directly connected with the manufacture, purchase of goods and bringing them to the point of sale. Direct expenses include carriage inwards, freight inwards, wages, factory lighting, coal, water and feul, royalty on production, etc. In our example-1, besides purchases, four more items of expenses are listed. These are wages, salaries, rent of building and bad debts. Out of these items, wages is treated as *direct expense* while the other three are treated as *indirect expenses*.

Similarly, *sales* constitute the main item of revenue for the business. The excess of sales over purchases and direct expenses is called *gross profit*. If the amount of purchases including direct expenses is more than the sales revenue, the resultant figure is *gross loss*. The computation of gross profit can be shown in the form of equation as :

Gross Profit = Sales – (Purchases + Direct Expenses)

The gross profit or the gross loss is transferred to profit and loss account.

The *indirect expenses* are transferred to the debit side of the second part, viz. profit and loss account. All revenue/gains other than *sales* are transferred to the credit side of the profit and loss account. If the total of the credit side of the profit and loss account is more than the total of the debit side, the difference is the *net profit* for the period of which it is being prepared. On the other hand, if the total of the debit side is more than the total of the credit side, the difference is the *net loss* incurred by the business firm. In an equation form, it is shown as follows :

Net Profit = Gross Profit + Other Incomes – Indirect Expenses

Net profit or net loss so computed is transferred to the capital account in the balance sheet by way of the following entry :

(i) *For transfer of net profit*

Profit and Loss A/c	Dr.	
To Capital A/c		

(ii) For transfer of net loss

Capital A/c	Dr.	
To Profit and Loss A/c		

We are now redrafting the trading and profit and loss account to show gross profit and net profit of Ankit for the year ended March 31, 2005. The redrafted trading and profit and loss account will look like as shown is shown in figure 9.3.

Trading and Profit and Loss Account of Ankit
for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses	*Amount Rs.*	*Revenues/Gains*	*Amount Rs.*
Purchases	75,000	Sales	1,25,000
Wages	8,000		
Gross profit c/d	**42,000**		
	1,25,000		1,25,000
Salaries	25,000	Gross profit b/d	**42,000**
Rent of building	13,000	Commission received	5,000
Bad debts	4,500		
Net Profit (transfered to capital account)	**4,500**		
	47,000		47,000

Fig. 9.3 : *Showing the computation of gross profit and net profit of Ankit*

Gross profit, which represents the basic operational activity of the business is computed as Rs. 42,000. The gross profit is transferred from trading account to profit and loss account. Besides gross profit, business has earned an income of Rs. 5,000 as commission received and has spent Rs. 42,500 (Rs. 25,000 + Rs.13,000 + Rs.4,500) on expenses/losses including salaries, rent and bad debts. Therefore, the net profit is calculated as Rs. 4,500.

Illustration 1

Prepare a trading account from the following particulars for the year ended March 31, 2006:

	Rs.
Opening stock	37,500
Purchases	1, 05000
Sales	2,70,000
Wages	30,000

Solution

Trading Account
for the year ended March 31, 2006

Dr. **Cr.**

Expenses/Losses	*Amount Rs.*	*Revenues/Gains*	*Amount Rs.*
Opening stock	37,500	Sales	2,70,000
Purchases	1,05,000		
Wages	30,000		
Gross profit	97,500		
	2,70,000		2,70,000

Illustration 2

Prepare a trading account of M/s Prime Products from the following particulars pertaining to the year 2005-06.

	Rs.
Opening stock	50,000
Purchases	1,10,000
Return inwards	5,000
Sales	3,00,000
Return outwards	7,000
Factory rent	30,000
Wages	40,000

Solution

Books of Prime Products
Trading Account
for the year ended March 31, 2006

Dr. **Cr.**

Expenses/Losses		*Amount Rs.*	*Revenues/Gains*		*Amount Rs.*
Opening stock		50,000	Sales	3,00,000	
Purchases	1,10,000		*Less* : Return inwards	(5,000)	2,95,000
Less : Return outwards	(7,000)	1,03,000			
Factory rent		30,000			
Wages		40,000			
Gross profit		72,000			
		2,95,000			2,95,000

Illustration 3.

Prepare a trading account of M/s Anjali from the following information related to 2005-06.

	Rs.
Opening stock	60,000
Purchases	3, 00,000
Sales	7, 50,000
Purchases return	18,000
Sales return	30,000
Carriage on purchases	12,000
Carriage on sales	15,000
Factory rent	18,000
Office rent	18,000
Dock and Clearing charges	48,000
Freight and Octroi	6,500
Coal, Gas and Water	10,000

Solution

Books of Anjali
Trading Account
for the year ended 2005-06

Dr. **Cr.**

Expenses/Losses		*Amount Rs.*	*Revenues/Gains*		*Amount Rs.*
Opening stock		60,000	Sales	7,50,000	
Purchases	3,00,000		*Less* : Sales return	(30,000)	7,20,000
Less : Purchases return	(18,000)	2,82,000			
Carriage on purchases		12,000			
Factory rent		18,000			
Dock and Clearing charges		48,000			
Freight and Octroi		6,500			
Coal, Gas and Water		10,000			
Gross profit		2,83,500			
		7,20,000			7,20,000

Illustration 4

From the following information, prepare a profit and loss account for the year ending March 31, 2005.

	Rs.
Gross profit	60,000
Rent	5,000
Salary	15,000
Commission paid	7,000
Interest paid on loan	5,000
Advertising	4,000
Discount received	3,000
Printing and stationery	2,000
Legal charges	5,000
Bad debts	1,000
Depreciation	2,000
Interest received	4,000
Loss by fire	3,000

Profit and Loss Account
for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses	*Amount Rs.*	*Revenues/Gains*	*Amount Rs.*
Rent	5,000	Gross profit	60,000
Salary	15,000	Discount received	3,000
Commission	7,000	Interest received	4,000
Interest paid on loan	5,000		
Advertising	4,000		
Printing and Stationery	2,000		
Legal charges	5,000		

Bad debts	1,000		
Depreciation	2,000		
Loss by fire	3,000		
Net profit (transferred to the capital account)	18,000		
	67,000		67,000

Test Your Understanding - I

I State True or False :

(i) Gross profit is total revenue.

(ii) In trading and profit and loss account, opening stock appears on the debit side because it forms the part of the cost of sales for the current accounting year.

(iii) Rent, rates and taxes is an example of direct expenses.

(iv) If the total of the credit side of the profit and loss account is more than the total of the debit side, the difference is the net profit.

II Match the items given under 'A' with the correct items under 'B'

(i) Closing stock is credited to	(a) Trial balance
(ii) Accuracy of book of account is tested by	(b) Trading account
(iii) On returning the goods to seller, the buyer sends	(c) Credit note
(iv) The financial position is determined by	(d) Balance sheet
(v) On receiving the returned goods from the buyer, the seller sends	(e) Debit note

9.4.4 Cost of Goods Sold and Closing Stock–Trading Account Revisited

The trading and profit and loss account prepared in figure 9.3 presents useful information as to the profitability from the basic operations of the business enterprise. It is reproduced for further perusal.

Trading Account of Ankit
for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses	*Amount Rs.*	*Revenues/Gains*	*Amount Rs.*
Purchases	75,000	Sales	1,25,000
Wages	8,000		
Gross profit	42,000		
	1,25,000		1,25,000

Fig. 9.4 : *An illutrative trading account of Ankit*

If there is no opening or closing stock, the total of purchases and direct expenses is taken as *Cost of goods sold*. In our example, notice that purchases amount to Rs. 75,000 and wages amounts to Rs. 8,000. Hence, the cost of goods sold will be computed using the following formula :

Cost of Goods Sold = Purchases + Direct Expenses
= Rs.75, 000 + Rs. 8,000
= Rs. 83,000

As there is no unsold stock,the presumption here is that all the goods purchased have been sold. But in practice, there is some unsold goods at the end of the accounting period.

In our example, let us assume that out of the goods purchased amounting to Rs. 75,000 in the current year, Ankit is able to sell goods costing Rs. 60,000 only. In such a situation, the business will have an unsold stock of goods costing Rs. 15,000 in hand, also called closing stock. The amount of cost of goods sold will be computed as per the following equation :

Cost of Goods Sold = Purchases + Direct Expenses – Closing Stock
= Rs. 75,000 + Rs. 8,000 – Rs. 15,000

As a result, the amount of gross profit will also change with the existence of closing stock in business from Rs. 42,000 (as computed in figure 9.4) to Rs. 57,000 (refer figure 9.5).

Trading Account of Ankit
for the year ended March 31, 2005

Expenses/Losses	*Amount Rs.*	*Revenues/Gains*	*Amount Rs.*
Purchases	75,000	Sales	1,25,000
Wages	8,000	**Closing stock**	**15,000**
Gross profit c/d	**57,000**		
	1,40,000		1,40,000
Salaries	25,000	Gross profit b/d	57,000
Rent of building	13,000	Commission received	5,000
Bad debts	4,500		
Net Profit (transfered to capital account)	**19,500**		
	62,000		62,000

Fig. 9.5 : *The trading account of Ankit*

It may be noted that closing stock does not normally form part of trial balance, and is brought into books with the help of the following journal entry :

Closing stock A/c		Dr.
To Trading A/c		

This entry opens a new account of asset, i.e. closing stock Rs. 15,000 which is transferred to the balance sheet. The closing stock shall be an opening stock for the next year and shall be sold during the year. In most cases, therefore, the business shall have opening stock as well as closing stock every year, and the cost of goods sold should be worked as per the following equation:

Cost of Goods Sold = Opening Stock+Purchases Direct Expenses–Closing Stock

Look at Illustration 5 and see how it has been computed.

Illustration 5

Compute cost of goods sold for the years 2005 with the help of the following information and prepare trading account

	Rs.
Sales	20, 00,000
Purchases	15, 00,000
Wages	1, 00,000
Stock (Apr. 01, 2004)	3, 00,000
Stock (March 31, 2005)	4,00,000
Freight inwards	1,00,000

Solution

Computation of Cost of Goods Sold

Particulars	*Amount Rs.*
Opening stock	3,00,000
Add Purchases	15,00,000
Direct expenses :	
Freight inwards	1,00,000
Wages	1,00,000
	20,00,000
Less Closing stock	(4,00,000)
Cost of goods sold	16,00,000

Trading Account
for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses	*Amount Rs.*	*Revenues/Gains*	*Amount Rs.*
Opening stock	3,00,000	Sales	20,00,000
Purchases	15,00,000	Closing stock	4,00,000
Freight inwards	1,00,000		
Wages	1,00,000		
Gross profit	4,00,000		
	24,00,000		24,00,000

Illustration 6

From the following balances obtained from the few accounts of Mr. H. Balaram. Prepare the Trading and Profit and Loss Account.

	Rs.		*Rs.*
Stock on Apr. 01, 2004	8,000	Bad debts	1,200
Purchases for the year	22,000	Rent	1,200
Sales for the year	42,000	Discount allowed	600
Purchase expenses	2,500	Commission paid	1,100
Salaries and wages	3,500	Sales expenses	600
Advertisement	1,000	Repairs	600

Closing stock on March 31, 2005 is Rs. 4,500

Books of H. Balaram
Trading Account
for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses	*Amount Rs.*	*Revenues/Gains*	*Amount Rs.*
Opening stock	8,000	Sales	42,000
Purchases	22,000	Closing stock	4,500
Purchase expenses	2,500		
Gross profit c/d	14,000		
	46,500		46,500
Salaries and Wages	3,500	Gross profit b/d	14,000
Rent	1,200		
Advertisement	1,000		
Commission	1,100		
Discount allowed	600		
Bad debts	1,200		
Sales expenses	600		
Repairs	600		
Net profit (transferred to capital account)	4,200		
	14,000		14,000

9.5 Operating Profit (EBIT)

It is the profit earned through the normal operations and activities of the business. Operating profit is the excess of operating revenue over operating expenses. While calculating operating profit, the incomes and expenses of a purely financial nature are not taken into account. Thus, operating profit is profit before interest and tax (EBIT). Similarly, abnormal items such as loss by fire, etc. are also not taken into account. It is calculated as follows :

Operating profit = Net Profit + Non Operating Expenses – Non Operating Incomes

Refer to the trial balance of Ankit in example 1, you will notice that it depicts an item relating to 10 % interest on long-term loan raised on April 01, 2004. The amount of interest works out to Rs. 500 (Rs. 5,000 10/100), which has been shown on the debit side of the trading and profit and loss account (figure 9.6).

Trading and Profit and Loss Account of Ankit for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses	*Amount Rs.*	*Revenues/Gains*	*Amount Rs.*
Purchases	75,000	Sales	1,25,000
Wages	8,000	Closing stock	15,000
Gross profit c/d	57,000		
	1,40,000		1,40,000
Salaries	25,000	Gross profit b/d	57,000
Rent of building	13,000	Commission received	5,000
Bad debts	4,500		
Interest	**500**		
Net Profit (transfered to capital account)	**19,000**		
	62,000		62,000

Fig. 9.6 : *Showing the treatment of interest on profit*

The operating profit will be :

Operating profit = Net profit + Non-operating expenses – Non-operating incomes
Operating profit = Rs. 19,000 + 500 – nil
= Rs. 19,500

Test Your Understanding - II

Choose the correct option in the following questions :

1. The financial statements consist of:
   (i) Trial balance
   (ii) Profit and loss account
   (iii) Balance sheet
   (iv) (i) & (iii)
   (v) (ii) & (iv)
2. Choose the correct chronological order of ascertainment of the following profits from the profit and loss account :
   (i) Operating Profit, Net Profit, Gross Profit
   (ii) Operating Profit, Gross Profit, Net Profit
   (iii) Gross Profit, Operating Profit, Net Profit
   (iv) Gross Profit, Net Profit, Operating Profit
3. While calculating operating profit, the following are not taken into account.
   (i) Normal transactions
   (ii) Abnormal items
   (iii) Expenses of a purely financial nature
   (iv) (ii) & (iii)
   (v) (i) & (iii)
4. Which of the following is correct :
   (i) Operating Profit = Operating profit – Non-operating expenses – Non-operating incomes
   (ii) Operating profit = Net profit + Non-operating Expenses + Non-operating incomes
   (iii) Operating profit = Net profit + Non-operating Expenses – Non-operating incomes
   (iv) Operating profit = Net profit – Non-operating Expenses + Non-operating incomes

Illustration 7

Following balance is extracted from the books of a trader ascertain gross profit, operating profit and net profit for the year ended March 31, 2005.

Particulars	*Amount Rs.*
Sales	75,250
Purchases	32,250
Opening stock	7,600
Sales return	1,250
Purchases return	250
Rent	300
Stationary and printing	250
Salaries	3,000
Misc. expenses	200
Travelling expenses	500
Advertisement	1,800

Commission paid	150
Office expenses	1,600
Wages	2,600
Profit on sale of investment	500
Depreciation	800
Dividend on investment	2,500
Loss on sale of old furniture	300

Closing stock (March 31, 2005) valued at Rs. 8,000

Trading and Profit and Loss Account
for the year ended March 31, 2005

Dr. **Cr.**

Expenses/Losses		*Amount Rs.*	*Revenues/Gains*		*Amount Rs.*
Opening stock		7,600	Sales	75,250	
Purchases	32,250		*Less* : Sales return	(1,250)	74,000
Less: Purchases return	(250)	32,000	Closing stock		8,000
Wages		2,600			
Gross profit c/d		**39,800**			
		82,000			82,000
Rent		300	Gross profit b/d		39,800
Stationary and printing		250			
Salaries		3,000			
Misc. expenses		200			
Travelling expenses		500			
Advertisement expenses		1,800			
Commission paid		150			
Office expenses		1,600			
Depreciation		800			
Operating profit c/d		**31,200**			
		39,800			39,800
Loss on sale of old furniture		300	Operating profit b/d		**31,200**
Net Profit (transferred to capital account)		33,900	Profit on sale of investment		500
			Dividend on investment		2,500
		34,200			34,200

9.6 Balance Sheet

The balance sheet is a statement prepared for showing the financial position of the business summarising its assets and liabilities at a given date. The assets reflect debit balances and liabilities (including capital) reflect credit balances. It is prepared at the end of the accounting period after the trading

and profit and loss account have been prepared. It is called balance sheet because it is a statement of balances of ledger accounts that have not been transferred to trading and profit and loss account and are to be carried forward to the next year with the help of an opening entry made in the journal at the beginning of the next year.

9.6.1 Preparing Balance Sheet

All the account of assets, liabilities and capital are shown in the balance sheet. Accounts of capital and liabilities are shown on the left hand side, known as *Liabilities.* Assets and other debit balances are shown on the right hand side, known as *Assets.* There is no prescribed form of Balance sheet, for a proprietary and partnership firms. However, *Schedule VI Part I of the Companies Act 1956* prescribes the format and the order in which the assets and liabilities of a company should be shown. The normal format in which the balance sheet is prepared is shown in the figure 9.7.

Balance Sheet of .....as at March 31, 2005

Liabilities		*Amount Rs.*	*Assets*	*Amount Rs.*
Capital	.....		Furniture	.....
Add Profit	.....	.....	Cash	.....
Long-term loan		.....	Bank	.....
Short-term loan			Goodwill	.....
Sundry creditors		.....	Sundry debtors	.....
Bills payable			Closing stock	
Bank overdraft			Land and Buildings	
		xxxx		xxxx

Fig. 9.7 : *Format of a balance sheet*

Refer to our example -1 you will observe that the trial balance of Ankit depicts 14 accounts, out of which 7 accounts have been transferred to the trading and profit and loss account (refer figure 9.3). These are the accounts of revenues and expenses. The analysis of figure 9.3 shows that the business has incurred total expenses of Rs. 1, 25,500 and revenues generated are Rs. 1, 30,000 making a profit of Rs. 4,500. The remaining *seven items* in the trial balance reflects the capital, assets and liabilities. We are reproducing the trial balance (example -1) to show how the accounts of assets and liabilities of Ankit would be presented in the balance sheet.

Trial Balance of Ankit as on March 31, 2005

Account Title	*L.F.*	*Debit Amount Rs.*	*Credit Amount Rs.*
Cash		**1,000**	
Capital			**12,000**
Bank		**5,000**	
Sales			1,25,000
Wages		8,000	
Creditors			**15,000**
Salaries		25,000	
10% Long-term loan (raised on April 01, 2004)			**5,000**
Furniture		**15,000**	
Commission received			5,000
Rent of building		13,000	
Debtors		**15,500**	
Bad debts		4,500	
Purchases		75,000	
		1,62,000	1,62,000

Fig. 9.8 : *Showing the accounts of assets and liabilities in the trial balance of Ankit*

Balance Sheet of Ankit as at March 31, 2005

Liabilities		*Amount Rs.*	*Assets*	*Amount Rs.*
Capital	12,000		Furniture	15,000
Add Profit	4,500	16,500	Cash	1,000
10 % Long-term loan		5,000	Bank	5,000
Creditors		15,000	Debtors	15,500
		36,500		36,500

Fig. 9.9 : *Showing the balance sheet of Ankit*

9.6.2 Relevant Items in the Balance Sheet

Items which are generally included in a balance sheet are explained below :

(1) *Current Assets:* Current assets are those which are either in the form of cash or a can be converted into cash within a year. The examples of such assets are cash in hand/bank, bills receivable, stock of raw materials, semi-finished goods and finished goods, sundry debtors, short term investments, prepaid expenses, etc.

(2) *Current Liabilities*: Current liabilities are those liabilities which are expected to be paid within a year and which are usually to be paid out of current assets. The examples of such liabilities are bank overdraft, bills payable, sundry creditors, short-term loans, outstanding expenses, etc.

(3) *Fixed Assets:* Fixed assets are those assets, which are held on a long-term basis in the business. Such assets are not acquired for the purpose of resale, e.g. land, building, plant and machinery, furniture and fixtures, etc. Some times the term 'Fixed Block' or 'Block Capital' is also used for them.

(4) *Intangible Assets :* These are such assets which cannot be seen or touched. Goodwill, Patents, Trademarks are some of the examples of intangible assets.

(5) *Investments:* Investments represent the funds invested in government securities, shares of a company, etc. They are shown at cost price. If, on the date of preparation the balance sheet, the market price of investments is lower than the cost price, a footnote to that effect may be appended to the balance sheet.

(6) *Long-term Liabilities* : All liabilities other than the current liabilities are known as long-term liabilities. Such liabilities are usually payable after one year of the date of the balance sheet. The important items of long term liabilities are long-term loans from bank and other financial institutions.

(7) *Capital:* It is the excess of assets over liabilities due to outsiders. It represents the amount originally contributed by the proprietor/ partners as increased by profits and interest on capital and decreased by losses drawings and intrest on drawings.

(8) *Drawings* : Amount withdrawn by the proprietor is termed as drawings and has the effect of reducing the balance on his capital account. Therefore, the drawings account is closed by transferring its balance to his capital account. However it is shown by way of deduction from capital in the balance sheet.

9.6.3 Marshalling and Grouping of Assets and Liabilities

A major concern of accounting is about preparing and presenting the financial statement. The information so provided should be decision useful for the users. Therefore, it becomes necessary that the items appearing in the balance sheet should be properly *grouped* and presented in a particular order.

Marshalling of Assets and Liabilities

In a balance sheet, the assets and liabilities are arranged either in the order of *liquidity* or *permanence*. Arrangement of assets and liabilities in a particular order is known as Marshalling.

In case of *permanence*, the most permanent asset or liability is put on the top in the balance sheet and thereafter the assets are arranged in their reducing level of permanence.

In the balance sheet of Ankit you will find that furniture is the most permanent of all the assets. Out of debtors, bank and cash, debtors will take maximum time to convert back into cash. Bank is less liquid than cash. Cash is the most liquid of all the assets. Similarly, on the liabilities side, the capital, being the most important source of finance will tend to remain in the business for a longer period than the long-term loan. Creditors being a liquid liability will be discharged in the near future. The balance sheet of Ankit in the order of permanence is shown in figure 9.10(a).

Balance Sheet of Ankit as on March 31, 2005 (in order of permanence)

Liabilities		*Amount Rs.*	*Assets*	*Amount Rs.*
Capital	12,000		Furniture	15,000
Add Profit	4,500	16,500	Debtors	15,500
10 % Long-term loan		5,000	Bank	5,000
Creditors		15,000	Cash	1,000
		36,500		36,500

Fig. 9.10 (a) : *Items of balance sheet shown in the order of permanance*

In case of *liquidity*, the order is reversed. The information presented in this manner would enable the user to have a good idea about the life of the various accounts. The assets account of the relatively permanent nature would continue in the business for a longer time whereas the less permanent or more liquid accounts will change their forms in the near future and are likely to become cash or cash equivalent.

The balance sheet of Ankit in the order of liquidity is shown in figure 9.10(b)

Balance Sheet of Ankit as at March31,2005
(in order of liquidity)

Liabilities		*Amount Rs.*	*Assets*	*Amount Rs.*
Creditors		15,000	Cash	1,000
10 % Long-term loan		5,000	Bank	5,000
Capital	12,000		Debtors	15,500
Add Profit	4,500	16,500	Furniture	15,000
		36,500		36,500

Fig. 9.10 (b) : *Items of balance sheet shown in the order of liquidity*

Grouping of Assets and Liabilities

The items appearing in the balance sheet can also be properly grouped. The term grouping means putting together items of similar nature under a common heading. For example, the balance of accounts of cash, bank, debtors, etc. can be grouped and shown under the heading of 'current assets' and the balances of all fixed assets and long-term investment under the heading of 'non-current assets'.

Balance Sheet of Ankit as at March 31, 2005
(in order of permanence)

Liabilities		*Amount Rs.*	*Assets*	*Amount Rs.*
Owners Funds			*Non Current Assets*	
Capital	12,000		Furniture	15,000
Add Profit	4,500	16,500	*Current Assets*	
Non-Current Liabilities			Debtors	15,500
Long-term loan		5,000	Bank	5,000
Current Liabilities			Cash	1,000
Creditors		15,000		
		36,500		36,500

Fig. 9.10 (c): *Showing assets and liabilities arranged in logical groups*

Do it Yourself

Arrange the following items in the order of both permanence and liquidity. Also group them under logical heads :

Liabilities	***Assets***
Long-term loans	Building
Bank overdraft	Cash in hand
Bills payable	Cash at bank
Owner's equity	Bills receivable
Short-term loans	Sundry debtors
Sundry creditors	Land
	Finished goods
	Work in progress
	Raw material

Illustration 8

From the following balances prepare a trading and profit and loss account and balance sheet for the year ended March 31, 2006

Account Title	*Amount Rs.*	*Account Title*	*Amount Rs.*
Carriage on goods purchased	8,000	Cash in hand	2,500
		Bank overdraft	30,000
Carriage on goods sold	3,500	Motor car	60,000
Manufacturing expenses	42,000	Drawings	8,000
Advertisement	7,000	Audit fees	2,700
Excise duty	6,000	Plant	1,53,900
Factory lighting	4,400	Repairs to plant	2,200
Debtors	80,000	Stock at the end	76,000
Creditors	61,000	Purchases *less* return	1,60,000
Dock and Clearing charges	5,200	Commission on purchases	2,000
Postage and Telegram	800	Incidental trade expenses	3,200
Fire Insurance Premium	3,600	Investment	30,000
Patents	12,000	Interest on investment	4,500
Income tax	24,000	Capital	1,00,000
Office expenses	7,200	Sales *less* return	5,20,000
		Salest tax paid	12,000
		Discount allowed	2,700
		Discount on purchases	3,400

Trading and Profit and Loss Account
for the year ended March 31, 2006

Dr. **Cr.**

Expenses/Losses	*Amount Rs.*	*Revenues/Gains*	*Amount Rs.*
Purchases *less* return	1,60,000	Sales *less* return	5,20,000
Commission on purchases	2,000		
Carriage on goods purchasesd	8,000		
Manufacturing expenses	42,000		
Factory lighting	4,400		
Dock and Clearing charges	5,200		
Gross profit c/d	2,98,400		
	5,20,000		5,20,000
Carriage on sales	3,500	Gross profit b/d	2,98,400
Advertisement	7,000	Interest on investment	4,500
Excise duty	6,000	Discount on purchases	3,400
Postage and telegram	800		
Fire Insurance premium	3,600		
Office expenses	7,200		
Audit fees	2,700		
Repairs to plant	2,200		
Incidental trading expenses	3,200		
Sales tax paid	12,000		
Discount allowed	2,700		
Net profit (transferred to capital account)	2,55,400		
	3,06,300		3,06,300

Balance Sheet as at March 31, 2006

Liabilities		*Amount Rs.*	*Assets*	*Amount Rs.*
Bank overdraft		30,000	Cash in hand	2,500
Creditors		61,000	Debtors	80,000
Capital	1,00,000		Closing stock	76,000
Add Net profit	2,55,400		Investment	30,000
	3,55,400		Motor car	60,000
Less Drawings	(8,000)		Plant	1,53,900
	3,47400		Patents	12,000
Less Income tax	(24,000)	3,23,400		
		4,14,400		4,14,400

Illustration 9

From the following balances prepare trading and profit and loss account and balance sheet for the year ended March 31, 2006

Account Title	*Amount Rs.*	*Account Title*	*Amount Rs.*
Opening stock	15,310	Capital	2,50,000
Purchases	82,400	Drawings	48,000
Sales	256,000	Sundry debtors	57,000
Returns (Dr.)	4,000	Sundry creditors	12,000
Returns (Cr.)	2,400	Depreciation	4,200
Factory rent	18,000	Charity	500
Custom duty	11,500	Cash balance	4,460
Coal, gas & power	6,000	Bank balance	4,000
Wages and salary	36,600	Bank charges	180
Discount (Dr.)	7,500	Establishment expenses	3,600
Commission (Cr.)	1,200	Plant	42,000
Bad debts	5,850	Leasehold building	1,50,000
Bad debts recovered	2,000	Sales tax collected	2,000
Apprenticeship premium	4,800	Goodwill	20,000
Production expenses	2,600	Patents	10,000
Adminstrative expenses	5,000	Trademark	5,000
Carriage	8,700	Loan (Cr.)	25,000
		Interest on loan	3,000

The value of closing stock on March 31, 2006 was Rs. 25,400

Solution

Trading and Profit and Loss Account for the year ended March 31, 2006

Dr. **Cr.**

Expenses/Losses		*Amount Rs.*	*Revenues/Gains*		*Amount Rs.*
Opening stock		15,310	Sales:	2,56,000	
Purchases:	82,400		*Less* Returns	(4,000)	2,52,000
Less Returns :	(2,400)	80,000			
Factory rent		18,000	Closing stock		25,400
Custom duty		11,500			
Coal, gas, power		6,000			
Wages and salary		36,600			
Production expenses		2,600			
Carriage		8,700			
Gross profit c/d		98,690			
		2,77,400			2,77,400

Discount (Dr.)	7,500	Gross profit b/d	98,690
Bad debts	5,850	Commission	1,200
Administrative expenses	5,000	Bad debts recovered	2,000
Depreciation	4,200	Apprenticeship premium	4,800
Charity	500		
Bank charges	180		
Establishment expenses	3,600		
Interest on loan	3,000		
Net profit (transferred to capital account)	76,860		
	1,06,690		1,06,690

Balance Sheet as at March 31, 2006

Liabilities		*Amount Rs.*	*Assets*	*Amount Rs.*
Sales tax collected		2,000	Cash balance	4,460
Sundry creditors		12,000	Bank balance	4,000
Loan		25,000	Sundry debtors	57,000
Capital	2,50,000		Closing stock	25,400
Add Net profit	76,860		Leasehold building	1,50,000
	3,26,860		Plant	42,000
			Patents	10,000
Less Drawings	(48,000)	2,78,860	Goodwill	5,000
			Trade mark	20,000
		3,17,860		3,17,860

9.7 Opening Entry

The balances of various accounts in balance sheet are carried forward from one accounting period to another accounting period. In fact, the balance sheet of an accounting period becomes the opening trial balance of the next accounting period. Next year an opening entry is made which opens these accounts contained in the balance sheet.

Refer the balance sheet shown in figure 9.10(c). The opening entry with regard to it will be recorded as follows :

Furniture A/c	Dr.	15,000	
Debtors A/c	Dr.	15,500	
Bank's A/c	Dr.	5,000	
Cash A/c	Dr.	1,000	
To Capital A/c			16,500
To 10 % Long-term loan A/c			5,000
To Creditors A/c			15,000

Key Terms Introduced in the Chapter

- Balance sheet
- Bills payable
- Capital
- Capital receipts
- Carriage outwards
- Closing entries
- Current assets
- Purchases return
- Return inwards
- Revenue expenditure
- Discount allowed
- Cash
- Factory expenses
- Fixed assets
- Gross Profit
- Income tax
- Interest on drawings
- Net profit
- Order of performance
- Revenue receipt
- Sales
- Grouping and Marshalling
- Bank overdraft
- Bills receivable
- Capital expenditure
- Carriage inwards
- Cash at bank
- Closing stock
- Currents liabilities
- Rent
- Return outwards
- Depreciation
- Discount received
- Trade expenses
- Financial statements
- Freight
- Gross Loss
- Interest on capital
- Net loss
- Order of liquidity
- Revenue expenditure
- Salaries
- Sales return

Summary with Reference to Learning Objectives

1 *Meaning, usefulness and types of financial statements :* After the agreement of the trial balance, a business enterprise proceeds to prepare financial statements. Financial statements are the statements, which present periodic reports on the process of business enterprises and the results achieved during a given period.

Financial statements includs trading and profit and loss account, balance sheet and other statements and explanatory notes, which form part thereof. Information provided by financial statements is useful to management to plan and control the business operations. Financial statement are also useful to creditors, shareholders and employees of the enterprise.

2 *Meaning need and preparation of trading and profit and loss account* : The profit and loss account highlights the profit earned or loss sustained by the business entity in the course of business operation during a given period.

The need for preparing the trading and profit and loss account is to ascertain the net result of business operations during a given period. The profit and loss account shows the items of revenue expenses and losses on the debit side, while items of gain and gross profit are shown on the credit side. For the preparation of the trading and profit and loss account, closing entries are recorded to transfer balances of account of items of expenses and revenues. Net profit or net loss shown by the profit and loss account is transferred to the capital account.

3 *Meaning, characteristic, need and structure of the balance sheet* : The balance sheet is a statement of assets and liabilities of a business enterprise and shows the financial position at a given date Informations contained in a balance sheet is true only on that date. The balance sheet is a part of the final account. But it is not an account, it is only a statement. In a balance sheet the totals of assets and liabilities are always equal. It portrays the accounting equation.

A balance sheet has to be prepared to know the financial position of the business, and the nature and values of its assets and liabilities. All the accounts which have not been closed till the preparation of the profit and loss account are shown in the balance sheet. Assets and liabilities shown in the balance sheet are marshalled in order of liquidity or in order of permanence.

Questions for Practice

Short Answers

1. What are the objectives of preparing financial statements ?
2. What is the purpose of preparing trading and profit and loss account?
3. Explain the concept of cost of goods sold?
4. What is a balance sheet. What are its characteristics?
5. Distinguish between capital and revenue expenditure and state whether the following statements are items of capital or revenue expenditure :
   (a) Expenditure incurred on repairs and whitewashing at the time of purchase of an old building in order to make it usable.
   (b) Expenditure incurred to provide one more exit in a cinema hall in compliance with a government order.
   (a) Registration fees paid at the time of purchase of a building
   (b) Expenditure incurred in the maintenance of a tea garden which will produce tea after four years.
   (c) Depreciation charged on a plant.
   (d) The expenditure incurred in erecting a platform on which a machine will be fixed.
   (e) Advertising expenditure, the benefits of which will last for four years.
6. What is an operating profit?

Long Answars

1. What are financial statements? What information do they provide.
2. What are closing entries? Give four examples of closing entries.
3. Discuss the need of preparing a balance sheet.
4. What is meant by Grouping and Marshalling of assets and liabilities. Explain the ways in which a balance sheet may be marshalled.

Numerical Questions

1. From the following balances taken from the books of Simmi and Vimmi Ltd. for the year ending March 31, 2003, calculate the gross profit.

	(Rs.)
Closing stock	2,50,000
Net sales during the year	40,00,000
Net purchases during the year	15,00,000

Opening stock	15,00,000
Direct expenses	80,000

(*Ans.* Gross profit Rs.11,70,000)

2. From the following balances extracted from the books of M/s Ahuja and Nanda. Calculate the amount of :
   (a) Cost of goods available for sale
   (b) Cost of goods sold during the year
   (c) Gross Profit

	Rs.
Opening stock	25,000
Credit purchases	7,50,000
Cash purchases	3,00,000
Credit sales	12,00,000
Cash sales	4,00,000
Wages	1,00,000
Salaries	1,40,000
Closing stock	30,000
Sales return	50,000
Purchases return	10,000

(*Ans.* (a) Rs. 11,65,000 ; (b) Rs.11,35,000 ; (c) Rs.4,15,000

3. Calculate the amount of gross profit and operating profit on the basis of the following balances extracted from the books of M/s Rajiv & Sons for the year ended March 31, 2005.

	Rs.
Opening stock	50,000
Net sales	11,00,000
Net purchases	6,00,000
Direct expenses	60,000
Administration expenses	45,000
Selling and distribution expenses	65,000
Loss due to fire	20,000
Closing stock	70,000

(*Ans.* Gross profit Rs.4,60,000, Operating profit Rs.3,50,000)

4. Operating profit earned by M/s Arora & Sachdeva in 2005-06 was Rs.17,00,000. Its non-operating incomes were Rs.1,50,000 and non-operating expenses were Rs.3,75,000. Calculate the amount of net profit earned by the firm.

(*Ans.* Net profit Rs.14,75,000)

5. The following are the extracts from the trial balance of M/s Bhola & Sons as on March 31, 2005

Account title	*Debit Rs.*	*Credit Rs.*
Opening stock	2,00,000	
Purchases	8,10,000	
Sales		10,10,000
	10,10,000	10,10,000

(only relevant items)

Closing Stock as on date was valued at Rs.3,00,000.

You are required to record the necessary journal entries and show how the above items will appear in the trading and profit and loss account and balance sheet of M/s Bhola & Sons.

6. Prepare trading and profit and loss account and balance sheet as on March 31, 2005 :

Account Title	*Amount Rs.*	*Account Title*	*Amount Rs.*
Machinery	27,000	Capital	60,000
Sundry debtors	21,600	Bills payable	2,800
Drawings	2,700	Sundry creditors	1,400
Purchases	58,500	Sales	73,500
Wages	15,000		
Sundry expenses	600		
Rent & taxes	1,350		
Carriage inwards	450		
Bank	4,500		
Openings stock	6,000		

Closing stock as on March 31, 2005 Rs.22,400

[*Ans*. Gross profit Rs.15,950, Net profit Rs.14,000, Total balance sheet Rs.75,500]

7. The following trial balance is extracted from the books of M/s Ram on March 31, 2005. You are required to prepare trading and profit and loss account and the balance sheet as on date :

Account title	*Amount Rs.*	*Account title*	*Amount Rs.*
Debtors	12,000	Apprenticeship premium	5,000
Purchases	50,000	Loan	10,000
Coal, gas and water	6,000	Bank overdraft	1,000
Factory wages	11,000	Sales	80,000
Salaries	9,000	Creditors	13,000
Rent	4,000	Capital	20,000
Discount	3,000		
Advertisement	500		
Drawings	1,000		
Loan	6,000		
Petty cash	500		
Sales return	1,000		
Machinery	5,000		
Land and building	10,000		
Income tax	100		
Furniture	9,900		

(*Ans*. Gross profit: Rs. 12,000, Net profit: Rs. 500, Total balance sheet: Rs. 43,400)

8. The following is the trial balance of Manju Chawla on March 31, 2005. You are required to prepare trading and profit and loss account and a balance sheet as on date :

Account title	*Debit Amount Rs.*	*Credit Amount Rs.*
Opening stock	10,000	
Purchases and sales	40,000	80,000
Returns	200	600
Productive wages	6,000	
Dock and Clearing charges	4,000	
Donation and charity	600	
Delivery van expenses	6,000	
Lighting	500	
Sales tax collected		1,000
Bad debts	600	
Misc. incomes		6,000
Rent from tenants		2,000
Royalty	4,000	
Capital		40,000
Drawings	2,000	
Debtors and Creditors	6,0000	7,000
Cash	3,000	
Investment	6,000	
Patents	4,000	
Land and Machinery	43,000	

Closing stock Rs. 2,000.

(*Ans.* Gross Profit: Rs. 18,400, Net profit: Rs. 18,700, Total balance sheet: Rs. 64,700)

9. The following is the trial balance of Mr. Deepak as on March 31, 2005. You are required to prepare trading account, profit and loss account and a balance sheet as on date :

Account title	*Debit Amount Rs.*	*Account title*	*Credit Amount Rs.*
Drawings	36,000	Capital	2,50000
Insurance	3,000	Bills payable	3,600
General expenses	29,000	Creditors	50,000
Rent and taxes	14,400	Discount recived	10,400
Lighting (factory)	2,800	Purchases return	8,000
Travelling expenses	7,400	Sales	4,40,000
Cash in hand	12,600		
Bills receivable	5,000		

Sundry debtors	1,04,000		
Furniture	16,000		
Plant and Machinery	1,80,000		
Opening stock	40,000		
Purchases	1,60,000		
Sales return	6,000		
Carriage inwards	7,200		
Carriage outwards	1,600		
Wages	84,000		
Salaries	53,000		

Closing stock Rs. 35,000.

(*Ans.* Gross profit: Rs.1,83,000, Net profit : Rs. 85,000, Total balance sheet: Rs. 3,52,600)

10. Prepare trading and profit and loss account and balance sheet from the following particulars as on March 31, 2005.

Account Title	*Debit Amount Rs.*	*Credit Amount Rs.*
Purchases and Sales	3,52,000	5,60,000
Return inwards and Return outwards	9,600	12,000
Carriage inwards	7,000	
Carriage outwards	3,360	
Fuel and power	24,800	
Opening stock	57,600	
Bad debts	9,950	
Debtors and Creditors	1,31,200	48,000
Capital		3,48,000
Investment	32,000	
Interest on investment		3,200
Loan		16,000
Repairs	2,400	
General expenses	17,000	
Wages and salaries	28,800	
Land and buildings	2,88,000	
Cash in hand	32,000	
Miscellaneous receipts		160
Sales tax collected		8,350

Closing stock Rs. 30,000.

(*Ans.* Gross profit: Rs. 1,22,200, Net profit : Rs.92,850, Total balance sheet: Rs.5,13,200)

11. From the following trial balance of Mr. A. Lal, prepare trading, profit and loss account and balance sheet as on March 31, 2005

Account Title	*Debit Amount Rs.*	*Credit Amount Rs.*
Stock as on April 01, 2005	16,000	
Purchases and Sales	67,600	1,12,000
Returns inwards and outwards	4,600	3,200
Carriage inwards	1,400	
General expenses	2,400	
Bad debts	600	
Discount received		1,400
Bank over draft		10,000
Interest on bank overdraft	600	
Commission received		1,800
Insurance and taxes	4,000	
Scooter expenses	200	
Salaries	8,800	
Cash in hand	4,000	
Scooter	8,000	
Furniture	5,200	
Building	65,000	
Debtors and Creditors	6,000	16,000
Capital		50,000

Closing stock Rs. 15,000.

(*Ans.* Gross profit : Rs. 40,600, Net profit: Rs. 27,200, Total balance sheet: Rs. 1,03,200)

12. Prepare trading and profit and loss account and balance sheet of M/s Royal Traders from the following balances as on March 31, 2005.

Debit balances	*Amount Rs.*	*Credit balances*	*Amount Rs.*
Stock	20,000	Sales	2,45,000
Cash	5,000	Creditors	10,000
Bank	10,000	Bills payable	4,000
Carriage on purchases	1,500	Capital	2,00,000
Purchases	1,90,000		
Drawings	9,000		
Wages	55,000		
Machinery	1,00,000		
Debtors	27,000		
Postage	300		
Sundry expenses	1,700		
Rent	4,500		
Furniture	35,000		

Closing stock Rs.8,000

(*Ans.* Gross loss Rs. 13,500, Net loss Rs. 20,000, Total balance sheet Rs. 1,85,000)

13. Prepare trading and profit and loss account from the following particulars of M/s Neema Traders as on March 31, 2005.

Account Title	*Debit Amount Rs.*	*Account Title*	*Credit Amount Rs.*
Buildings	23,000	Sales	1,80,000
Plant	16,930	Loan	8,000
Carriage inwards	1,000	Bills payable	2,520
Wages	3,300	Bank overdraft	4,720
Purchases	1,64,000	Creditors	8,000
Sales return	1,820	Capital	2,36,000
Opening stock	9,000	Purchases return	1,910
Machinery	2,10,940		
Insurance	1,610		
Interest	1,100		
Bad debts	250		
Postage	300		
Discount	1,000		
Salaries	3,000		
Debtors	3,900		

Stock on March 31, 2005 Rs.16,000.

(*Ans.* Gross profit Rs.17,850, Net profit Rs. 10,590, Total of balance sheet Rs.2,69,830)

14. From the following balances of M/s Nilu Sarees as on March 31, 2005. Prepare trading and profit and loss account and balance sheet as on date.

Account Title	*Debit Amount Rs.*	*Account Title*	*Credit Amount Rs.*
Opening stock	10,000	Sales	2,28,000
Purchases	78,000	Capital	70,000
Carriage inwards	2,500	Interest	7,000
Salaries	30,000	Commission	8,000
Commission	10,000	Creditors	28,000
Wages	11,000	Bills payable	2,370
Rent & taxes	2,800		
Repairs	5,000		
Telephone expenses	1,400		
Legal charges	1,500		
Sundry expenses	2,500		
cash in hand	12,000		
Debtors	30,000		
Machinery	60,000		
Investments	90,000		
Drawings	18,000		

Closing stock as on March 31, 2005 Rs.22,000.

(*Ans.* Gross profit Rs. 1,56,500, Net profit Rs. 1,10,300, Total balance sheet Rs.2,14,000)

15. Prepare trading and profit and loss account of M/s Sports Equipments for the year ended March 31, 2006 and balance sheet as on that date :

Account Title	*Debit Amount Rs.*	*Credit Amount Rs.*
Opening stock	50,000	
Purchases and sales	3,50,000	4,21,000
Sales returns	5,000	
Capital		3,00,000
Commission		4,000
Creditors		1,00,000
Bank overdraft		28,000
Cash in hand	32,000	
Furniture	1,28,000	
Debtors	1,40,000	
Plants	60,000	
Carriage on purchases	12,000	
Wages	8,000	
Rent	15,000	
Bad debts	7,000	
Drawings	24,000	
Stationery	6,000	
Travelling expenses	2,000	
Insurance	7,000	
Discount	5,000	
Office expenses	2,000	

Closing stock as on March 31, 2006 Rs.2,500

(*Ans.* Gross loss Rs. 1,500, Net loss Rs. 41,500 , Total balance sheet Rs.3,62,500)

Checklist to Test Your Understanding

1. *Test Your Understanding - I*

   I (i) T (ii) T (iii) F (iv) T
   II (i) b (ii) a (iii) e (iv) c (v) d

2. *Test Your Understanding - II*

   1. (v) 2. (iii) 3. (iii) 4. (iii)