CHAPTER 1: COST SHEET (UNIT COSTING)

Cost Sheet

Meaning: A cost sheet is statement which shows the break-up and build-up of costs, it is a document which provides for the assembly of the detailed cost of a cost centre or a cost unit.

Uses of the Cost Sheet

(a) Presentation of cost information.

(b) Determination of Selling Price.

(c) Ascertainment of profitability.

(d) Product-wise and Location-wise cost Analysis.

(e) Inter-Firm and Intra-Firm cost comparison.

(f) Preparation of Cost Estimates for submitting tenders/quotations.

(g) Preparation of Budgets.

(h) Disclosure of operational efficiency for cost control.

ELEMENTS OF COSTS

In case of a typical manufacturing type of operation, the activity may consist of conversation of raw material in the form of finished goods with the help of labour and other services and selling the finished goods in the market to earn the profits. In order to interpret the term cost correctly and to ascertain the cost with respect to the centres, the cost attached with the manufacturing process may be subdivided into what is known as Elements of Cost. Broadly there can be three elements of costs:

(A) Material

This is the cost of commodities and materials used by the organization. It can be direct or indirect. Direct Material indicates that material which can be identified with the individual cost centre and which becomes an integral part of the finished goods. It basically consists of all raw materials, either purchased from outside or manufactured in house.

Indirect Material indicates that material which cannot be identified with the individual cost centre. This material assists the manufacturing process and does not become an integral part of finished goods. The example of this type of material may be consumable stores, cotton waste, oils and lubricants, stationary material etc.

(B) Labour

This is the cost of remuneration paid to the employees of the organization. It can direct or indirect. Direct labour cost indicates that labour cost which can be identified with the individual cost centre and is incurred for those employees who are engaged in the manufacturing process.

Indirect labour cost indicates that labour cost which cannot be identified with the individual cost centre and is incurred for those employees who are not engaged in the

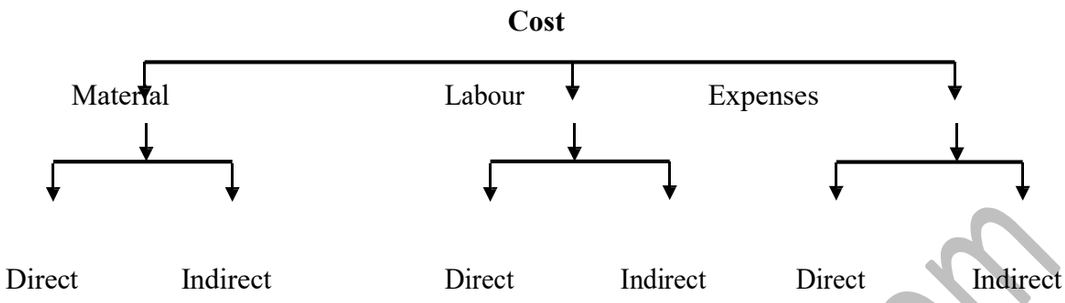
Manufacturing process but only assist in the same. The examples of this type of cost are wages paid to foreman/storekeeper, salary of works manager, Accounts/Personnel department salaries etc.

(C) Expenses

This is cost of services provided to the organization (and the national cost of assets owned). It can be direct or indirect.

Direct Expenses are those expenses, which can be identified with the individual cost centres. The examples of these expenses are hire charges of machinery/equipments required for a particular job, cost of defective work for a particular job etc.

Indirect expenses are those expenses, which cannot be identified with individual cost centres. The examples of these expenses are rent, telephone expenses, insurance, lighting etc. The above elements of cost can be shown as below.



The aggregate of Direct Material Cost, Direct Labour Cost and Direct Expenses is termed as 'Prime Cost'.

The aggregate of Indirect Material Cost, Indirect Labour Cost and Indirect Expenses is termed as 'Overheads'.

Overheads:

As discussed above, the aggregate of Indirect Material Cost, Indirect Labour Cost and Indirect Expenses is termed as 'Overheads'. For the proper interpretation and presentation of cost, the term overheads may be further classified as below.

(a) Factory Overheads (Also termed as production/work/manufacturing overheads).

(b) Office and Administration Overheads.

(c) Selling and Distribution Overheads.

(a) Factory Overheads

These overheads consist of all overhead costs incurred from the state of procurement of material till the stage of production of finished goods. They include :

- Indirect Material such as stationary items, office supplies etc.
- Indirect Labour cost such as salaries paid to Account and Administration staff, Directors remuneration etc.
- Indirect Expenses such as postage/telephone, rent/insurance/depreciation on office building, general lighting, legal/audit charges, bank charges etc.

(b) Selling and distribution overheads

These overheads consist of all overhead costs insured from the stage of final manufacturing of finished goods till the stage of sale of goods in the market and collection of dues from the customers. They include:

- Indirect Material such as packing material, samples etc.
- Indirect Labour like salaries paid to sales personnel, commission paid to sales manager etc.

- Indirect Expenses like carriage outwards, warehouse charges, and advertisement, bad debts, repairs, and running of distribution van, discount offered to customer

etc. The above relationship among the various elements of costs can be explained in a better way with the help of following diagram.

Profit	Sales
Selling & Distribution overheads	cost of sales
Administration overheads	Total cost of Production
Factory overheads	Factory cost
Direct overheads	Prime cost
Direct expenses	Prime cost
Direct labour	Prime cost
Direct material	Prime cost

Performa of the cost sheet

The Performa of the simple cost sheet i.e. without stocks is as under:

Direct Materials	_____
Direct Labour	_____
Direct Expenses	_____
Prime Cost	_____
Add : Administration Overheads	_____
Cost of Production	_____

Add : Selling and Distribution Overheads	_____
Cost of Sales	_____
Add : Profit/Loss (Balancing Figure)	_____
Sales	_____

The Performa of the comprehensive cost sheet is as under:

Opening stock of Raw Materials	_____
Add: Purchases (including carriage Inwards, Transit Insurance etc.)	_____
Less : Closing Stock of Raw Materials	_____
Raw Materials Consumed	_____
Direct labour	_____
Direct Expenses	_____
Prime Cost	_____
Add : Factory Overheads (Works OH/Manufacturing Oil/ Production O/H)	_____
Gross Factory Cost/Works Cost	_____

Add : Opening Stock of Work in Progress	_____
Less : Closing stock of work in Progress	_____
Net Factory Cost/Works Cost	_____
Add : Administration Overheads	_____
Cost of Production	_____
Add : Opening Stock of Finished Goods	_____
Less : Closing Stock of Finished Goods	_____
Cost of Goods Sold	_____
Add : Selling and Distribution Overheads	_____
Cost of Sales	_____
Add : Profit/Loss (Balance Figure)	_____
Sales	_____

Difference between a Production Account and a Cost Sheet

(i) Production Account is based on double entry system whereas cost sheet is not based on double entry system.

(ii) Production Account consists of two parts. The first part shows cost of components and total production cost. The second shows that cost of sales and profit for the period. Cost Sheet production the elements of costs in a classified manner and the cost is ascertained at different stages such as prime cost; works cost; cost of production; cost of goods sold; cost of sales and total costs.

(iii) Production Account shows the cost in aggregate and thus facilities comparison with other financial accounts. Cost sheet shows the cost in detail and analytical manner, which facilitates comparison of cost for the purpose of cost control.

(iv) Production Account is not useful for preparing tenders or quotations. Estimated cost sheets can be prepared on the basis of actual cost sheets and these are useful for preparing tenders or quotations.

(A) THEORETICAL PROBLEMS

Q1. Define Unit Costing. In what type of industry it is applied?

Ans: Unit costing is the costing technique adopted by those undertaking which produces only one product or a few grades of the same product on large scale.

This costing technique is used in the following industries:

1. Brick making.
2. Shoe manufacturing industry.
3. Cement Industry.
4. TV and Radio manufacturing, etc.

Q2. How does a Production Account differ from a cost sheet? (CA Inter Nov. 1998; May 2000)

Q3. What are the advantages of preparation of cost sheet?

Ans.

1. It reveals total cost and cost per unit.
2. It discloses the total break up of total costs.
3. It helps in fixing up selling price more accurately.
4. It facilitates cost composition.
5. It helps in the preparation of cost estimates for the submission of tenders.

Q4. What are the characteristics of industries which uses unit costing?

Ans.

1. Identical or homogeneous goods are manufactured.
2. Production is on large scale.

3. The goods are capable of being expressed in convenient unit of measurement.

Q5. "Price Quotations require preparation of estimated cost sheet". Comment
Ans. It is often seen that the management has to quota prices in advance in relation to goods to be supplied in future. For this purpose, an estimated cost sheet is prepared to show the estimated cost of products to be manufactured. While preparing the estimated

cost sheet the cost of direct materials, direct wages and overheads are estimated on the basis of past cost structure after taking into account the present conditions and also the anticipated changes in future price level.

(B) PRACTICAL SOLVED PROBLEMS

Q1. A manufacturing company has shown an amount of Rs. 16,190 in his books as "Establishment" which really includes the following expenses:

From this information, prepare a statement showing in separate totals (a) selling expenses (b) distribution expenses (c) Administration expenses and (d) Expenses which you would disregard in estimating costs.

Sr. no		**Rs**	**Sr. no**		**Rs**
1.	Agents' Commission	5750	9.	Rent, Rates and Insurance of Office	230
2.	Warehouse Wages	1800	10.	Lighting of Warehouse	270
3.	Warehouse Repair	510	11.	Bad Debt	1500
4.	Lighting of Office	70	12.	Donation	170
5.	Office Salaries	1130	13.	Bank Charges	150

6.	Directors' Remuneration	1400	14.	Cash Discount	100
7.	Travelling Expenses	760	15.	Cash Discount Allowed	1970
8.	Rent, Rates and Ins. of Warehouses	310			

Solution:

(a) Selling Expenses :	**Rs.**	**(b) Distribution Expenses**	**Rs.**
(i) Agent's Commission	5750	(i) Warehouse Wages	1800
(ii) Travelling Expenses	760	(ii) Warehouse Repairs	510
(iii) Bad Debt	170	(iii) Rent, Rates & Insurance of Warehouse	310
		(iv) Lighting of Warehouse	270
(c) Administration Expenses			2890
(i) Office Salaries	1130	**(d) Expenses excluded from cost A/C**	
(ii) Lighting of Office	70	(i) Donations	150
(iii) Directors Remuneration	1400	(ii) Discount Allowed	1970
(iii) Directors Remuneration	1400		2120
(iv) Rent, Rates & Insurance of Office	230		
(v) Printing & Stationary	1500		
(vi) Bank Charges	100		

	4430		

Q2. Following are the details of a company relating to month of March 2010:

1.

Stocks	**As on March 1**	**As on March 31**
- Raw Material	Rs.10,000	Rs. 12,000
- WIP	15,000	20,000
- Finished goods	40,000	35,000

	Rs.
2. Raw Material Purchased.	80,000
3. Carriage inwards	3,000
4. Direct Labour	70,000.
5. Indirect labour	30,000.
6. Printing and Stationery	5,000.
7. Power - Factory	18,000.
- Office	8,000
- Show Room	6,000.
8. Indirect factory materials	45,000.
9. Factory insurance	7,000.
10. Managing Director's remuneration	21,000.
11. Depreciation on machinery	24,000.
12. Sales Commission @ 5% of Sales.	
13. Rent - Factory	22,000
- Office	14,000

Prepare cost sheet showing (i) Prime cost; (ii) Works cost; (iii) Cost of production; (iv) Cost of Sales; and (v) Profit.

Solution: (i) Rs. 1,51,000; (ii) Rs. 2,92,000; (iii) Rs. 3,40,000; (iv) 3,85,000; (v) Rs. 1,15,000.

Cost Sheet For The Month Ending 31st March 2010

Opening Stock of Materials	10,000		
+Materials purchased	80,000		
+Carriage inward	3,000		
	93,000		
- Closing stock of materials	-12,000		
Direct materials		81,000	
Direct labour		70,000	
Prime cost			1,51,000
Indirect labour		30,000	
Sundry materials		45,000	
Factory power		18,000	
Factory insurance		7,000	
Depreciation on machinery		24,000	
Factory rent		22,000	
Factory overheads			1,46,000
Gross factory cost			2,97,000
+Opening stock of work in progress			+15,000
			3,12,000
-Closing stock of Work-in-progress			-20,000
Factory cost			2,92,000
Printing and stationary		5,000	
Office power		8,000	
Managing Director's remuneration		21,000	
Office rent		14,000	
Office and administration overheads			48,000
Cost of production			3,40,000
+Opening stock of finished goods			+40,000
			3,80,000
-Closing stock of finished goods			-35,000

Cost of production of good sold		3,45,000
Show room power	6,000	
Sales communication 5,00,000*5/100	25,000	
Show room rent	9,000	
Selling and Dist. Overheads		40,000
Cost of sales		3,85,000
Profit (balancing figure)		1,15,000
Sales		5,00,000

Q3. Prepare the cost sheet to show the total cost of production and cost per unit of goods manufactured by a company for the month of July 1996. Also find out the cost of sales.

Stock of raw materials 1.7.1996	Rs. 3000	Office rent	500
Raw materials purchased	28000	General expenses	400
Stock of raw materials 31.7.1996	4500	Discount sales	300
Manufacturing wages	7000	Advertisement expenses to be charged fully	600
Depreciation on plant	1500	Income tax paid	2000
Factory rent and rates	3000		

The number of units produced during July, 1996 was 3000.The stock of finished goods was 200 and 400 units on 1.7.1996 and 31.7.1996 respectively. The total cost of units on hand on 1.7.1996 was Rs. 2800. All these had been sold during the month.

Solution:

Cost Sheet

	Total	Per unit
Raw material consumed **Rs.** Opening stock 3,000	**Rs**	
Add: purchases	26,500	8.83
28,000	7,000.	2.33
31,000	33,500	11.16
Less: closing stock (4,500)		
Direct wages	4,500	1.50
Prime cost	38,000	12.66
Factory overheads: Depreciation 1,500	900	0.30
Factory rent	38,900	12.96
3,000		
Factory cost		
Office and Administration overheads: Office rent 500		

Statement of costs of sales

Cost of production		Rs. 38,900
Add: opening stock of finished goods		2,800
		41,700
Less: closing stock of finished goods (400xRs.12.96)		(5,184)
Costs of goods sold		36,516
Add: selling and distribution on overheads :		
Discount on sales	300	
Advertisement expenses	600	900
Cost of good sales		37,416

Q4. The following information relates to a company:

	Stock	***Beginning***	***Ending***
1.	- Finished goods	Rs. 1,10,000	Rs. 95,000
	- WIP	70,000	80,000
	- Raw Material	90,000	95,000

2. Cost of goods produced Rs. 6, 84,000
3. Factory cost Rs. 6, 54,000.
4. Factory Overheads Rs. 1, 67,000.
5. Direct Material consumed Rs. 1, 93,000.

Required:

(1) Raw material purchased. ***[Ans. Rs. 1, 98,000].***
(2) Direct labour cost. ***[Ans. Rs. 3, 04,000].***
(3) Cost of goods sold. ***[Ans. Rs. 6, 99,000].***

Solution:

i) Raw Material Purchased		
	Rs.	
Raw Material consumed		1,93,000
Add: Closing stock of Raw Material		95,000
		2,88,000
Less: Opening stock of Raw Material		(90,000)
Raw material purchased		1,98,000
ii) Direct Labour cost		
Factory cost	6,54,000	
Add: Closing stock of WIP		80,000
		7,34,000
Less: Opening stock of WIP		70,000
Gross factory cost		6,64,000
Less: Factory overheads		1,64,000
Prime cost		4,97,000
Less: Material consumed		1,93,000
Direct Labour cost		3,04,000
		Rs.
iii) Cost of goods produced		6,84,000
Add : Opening stock of Finished goods		1,10,000
		7,94,000
Less : Closing stock of finished goods		95,000
Cost of goods sold		6,99,000

Q5. The following particulars have been abstracted from books of M. manufacturing co.ltd. Calcutta, of the year ended 31st march 1996:

	Rs.
Stock of materials as on 31.2.1995	47,000
Rent, rates taxes and insurance (office)	1,000
Stock of materials as on 31.3.1996	50,000
Travelling expenses	3,100
Materials purchased	2,08,000
Traveller's salaries and commission	8,400
Drawing office salaries	9,600
Production wages	1,14000
Counting house salaries	14,000
Depreciation written off on machinery, plant and tools	7,100
Carriage inward	8,200
Carriage out ward	5,100
Depreciation written off on furniture	600
Cash discount allowed	3,400
Directors fees	6,000
Bad debts written off	4,700
Gas and water charges (factory)	1,500
Repairs of plants, machinery and gas and water charges (office)	300
Tools	10,600
General charges	5,000
rent, taxes ,rates and insurance	
Manager's salary	12,000
(Factory)	3,000

Out of 48 working hours in week, the time devoted by the manager to the factory and office was on average 40 hours and 8 hours, respectively throughout the accounting year. Prepare statement giving the following information:

(a) Prime cost

(b) Factory overheads and the percentage on production wages.

(c) Factory cost

(d) General overheads and percentage on factory cost

(e) Total cost

Solution:

Raw material consumed:		
Opening Stock of Raw Material		
47,000		
Add: Raw Material Purchased		
2,08,000		
Add: Carriage Inwards	2,13,200	
8,200	1,40,000	
		3,53,000
2,63,000		
Less: Closing Stock of Material		
(50,000)		
Production wages		
Prime Cost		
Add: Factory Overheads: (29.86% on wages)		
drawing office salaries		41,800
Repairs of plant, machinery		
Rent, rates, taxes and insurance (factory)		
depreciation on machinery, plant and tools		
Gas and water charges		
Manager's Salary (5/6 x Rs. 12,000)		
Factory Cost		
Add: Office and Administration overheads:		
(7.316% of factory cost)		
Counting house salaries		
Rent, rates taxes and insurance		
depreciation on furniture		
director's fees		

Cost of Production		
Add: Selling & distribution overheads:		
Carriage outwards		
Bad debts		
Travelling expenses		
Travellers salary & Commission		

Q6. The following data pertains to a company for the month of March 2003 :

1) Direct Material used Rs. 847.
2) Opening Stock of Finished goods?
3) Closing Stock of Finished goods Rs.94.
4) Direct Labour cost Rs. 389.
5) Manufacturing Overheads?
6) Cost of goods produced Rs. 1,878.
7) Cost of goods sold?
8) Cost of goods available for sale Rs. 1,949.

Solution:

Manufacturing Overheads Rs. 642; Opening stock of finished goods Rs. 71; cost of goods sold Rs. 1,855.

Computation of Manufacturing overheads

Cost of goods produced = D. Material + D. Labour + Manufacturing Overheads

Rs. 1,878 = Rs. 847 + Rs. 389 + Manufacturing Overheads

Hence, Manufacturing overheads = Rs. 642

Computation of opening stock of finished Goods

We know that

Cost of goods available for sale = Opening Stock of finished goods + Cost of goods Produced

Rs. 1,949 = opening stock of finished goods + Rs. 1,878

Hence, opening stock of finished goods = Rs. 71

Computation of cost of goods sold

We know that

Cost of goods sold = cost of goods available for sale – Closing stock of finished goods

Rs. (1,949 – 94) = Rs. 1,855

Q8. The cost of sale of Product A is made up as follows:

	Rs.
Materials used in manufacturing	5.500
Expenses—Indirect- Factory Expenses	100
Materials used in packing materials	1,000
Expense- Office	125
Materials used in selling the product	150
Depreciation—Office Building	
Materials used in the factory	75
And equipment	75
Materials used in the office	125
Depreciation—Factory	175
Labour required in producing	1,000
Selling expenses	350
Labour required for supervision of the Management—Factory	200
Freight Inwards	500

Assuming that all the products manufactured are sold. What should be the selling price to obtain a profit of 25% on selling price? Illustrate in a chart form for presentation to your manager the division of costs for Product A.

Solution:

Rs.		Rs.	Rs.
Material used in manufacturing	5,500		
Add: freight inwards	500		
Materials used in packing materials		7,000	
1,000		1,000	
Labour required in producing		500	
Expenses- direct- factory			8,500
Prime cost			
Add :factory Overheads: Materials		75	
used in the factory		200	
Labour for supervision		100	
Expenses- indirect- factory		175	500
Depreciation –factory			9,050
Work cost			
Add : Office Overheads:		125	
Materials used in the office		125	
Expenses - Office		75	325
Depreciation - office building c equipment			9,375
Cost of Production			
Add: Selling and Distribution overheads:		150	
Materials used in selling the products		350	
Selling expenses		125	625
Advertisement			
Total cost			10,000
Profit (25% on selling price)			

Q9. The books and records of AX Manufacturing Company present the following data for the Month of August, 2009.

Direct labour cost Rs. 16,000 (160% of factory overhead)

Cost of goods sold Rs. 56,000.

Inventory accounts showed these opening and closing balances:

	August 1st	***August 31st***
	Rs.	***Rs.***
Raw material	8,000	8,600
Work-in-progress	8,000	12,000
Finished goods	14,000	18,000
Other data:		
Selling expenses		3,400

General and administration expenses	2,600
Sales for the month	75,000

You are required to prepare a statement showing cost of goods manufactured and sold and Profit earned.

Solution: Raw Material Purchases Rs. 36,000; profit Rs. 15,600.

Cost Sheet for the month ending 31 August, 2009.

Opening Stock of Raw Material	8,000	
+ Purchases	36,000	
	44,000	
- Closing Stock of Raw Material	8,600	
Material Consumed		35,400
+ Direct Labour Cost		16,000
Prime Cost[1]		51,400
Factory Overhead		10,000
+ Opening WIP		61,400
		8,000
		69,400
- Closing WIP		12,000
Factory Cost		57,400
General Administrative Expenses		2,600
Cost of Production		60,000
+ Opening Stock of Finished		14,000
		74,000
- Closing Stock of Finished goods		18,000
Cost of Goods Sold		56,000
Selling Expenses		3,400
Cost of Sales		59,400
		15,600
		75,000

Computation of Purchases

(1) Cost of goods sold (Given)	56,000
+Closing Stock of Finished goods	18,000
	74,000
- Opening Stock of Finished goods	14,000
Cost of production	60,000
- General Administration Exp.	2,600
	57,400
+ Closing Stock of WIP	12,000
	69,400
- Opening Stock of WIP	8,000
	61,400
- Factory Overhead [—]	10,000
Prime Cost	51,400
- Labour Cost	16,000
Materials consumed	35,400
+ Closing Stock of Raw Material	8,600
	44,000
- Opening Stock of Raw Material	8,000
Purchases	36,000

Q10. The following details have been obtained from the cost records of Comet Paints Limited:

	Rs.
stock of raw materials on 1st Sept. 2005	75,500
stock of raw materials on 30th Sept. 2005	91.500
Direct Wages	52,500
Indirect wages	2,750
Sales	2,11,000
Work-in-progress on 1st Sept. 2005	28000
Work-in-progress on 30th 5et. 2005 %	35,000
Purchases of raw materials	66.000
Factory rent rates and power	15,000
Depreciation of plant and machinery	3,500
Expenses on purchases	1,500
Carriage outwards	2,500
Advertising	3.500
Office rent and taxes	2,500
Travellers wages and commission	6,500

Stock of finished goods on 1st Sept. 2005	54,000
Stock of finished goods on 30th Sept. 2005	31,000

Prepare a cost sheet giving the maximum possible break up of costs and profits.

Solution:

Cost Sheet

	Amount
Opening stock of raw Material	75,500
Add : Purchases of raw materials	66,000
Add : Expenses on purchases	1,500
Less: Closing Stock of raw Material	(91,500)
Raw material consumed	51,500
Add: direct Wages	52500
Prime cost	1,04,000
Add: Factory Overheads	
Indirect Wages	2,750
Factory rent, rates & power	15,000
depreciation on Plant & Machinery	3,500
Gross Factory Cost	1,25,250
Add : opening stock of work-in-progress	28,000
Less : closing stock of work-in-progress	(35,000)
Net factory cost	1,18,250
Add: office & Administration overheads	
Office rent & taxes	2,250
Cost of Production	1,20,750
Add: Opening stock of finished goods	54,000
Less: Closing stock of finished goods	(31,000)
Cost of goods sold	1,43,750
Add: Selling & distribution Overheads:	

Traveler's wages & Commission	6,500
Cost of sales	1,56,250
Profit	54,750
Sales	**2,11,000**

Q12. During February 2009 Thomas Ltd. has produced 5,000 pieces of a tractor component Z. Costs incurred during the month on this output are as follows:

Direct materials	1,20,000
Office salaries	60,000
Direct labour	1,60,000
Sales salaries	80,000
Factory rent and rates	30,000

Carriage outward	10,000
Office rent	20,000
Delivery van expenses	15,000
Show room rent	40,000
Depreciation of plant	25,000
Power	10,000
Direct factory expenses	40,000
Light	5,000
Crane expenses	25,000
Sundry factory expenses	15,000
Factory supervision	40,000
Indirect wages	50,000
Depreciation on office equipment	5,000
Advertisements	50,000
Sales	1, 00,000
Sales commission	25,000

Prepare cost sheet giving all necessary details regarding various components of cost and showing: (i) Total cost of 5,000 pieces; (ii) Cost per piece, and (iii) Cost as percentage to sales

Solution: ***[Ans :(i) Rs. 8, 25, 000 (ii) Rs. 165 (iii) 82.5%]***

Thomas Ltd. Cost sheet of 5,000 pieces of component Z produced in February 2009

Cost Item	***Total Cost***
Direct materials	
Direct labour	
Direct factory expenses	
Prime cost	
Factory rent and rates	
Power	

Indirect wages
Sundry factory expenses
Depreciation of plant
Crane expenses
Factory supervision
Production overheads
Work Cost
Office rent
Light
Office salaries
Depreciation on office equipment
Office and administration overheads
Cost of production
Show room rent
Advertisements
Sales commission
Sales salaries
Carriage outward
Delivery van Expenses
Selling and Distt. Overheads
Cost of sales
Profit (balancing figure)
Sales

Q13. Prepare a Cost Sheet to find the cost per ton of 'A' Grade paper, manufactured by a paper mill in December 1993 from the following data:

Direct Materials:

Paper pulp - 500 tons @ Rs. 52 per ton
Other materials - 100 tons @ Ps. 30 per ton
direct Labour:
80 skilled men @ Rs. 3 per day for 25 days
40 unskilled men @ Rs. 2 per day for 25 days

Direct Expenses:

Special equipment Ps. 2,500
Special dyes Ps. 1,500
Works Overhead:
Variable @ 100%. And
Fixed @ 60% on direct wages
Administration overhead @ 10 and selling and distribution overhead @ 20% on works cost. 400 tons of special paper was manufactured and Rs1, 800 realized by the sale of scrap Material during the course of manufacture. The scrap value of the special equipment after utilization in manufacture is nil.

Solution: **Cost Sheet_for_the month_of Dec. 1993**

	Total cost	Unit cost
Direct material cost		
Paper Pulp 500 tones Rs. 52 per ton	26,000	65.00
Other Material 100 tones @ Rs. 30 per ton	3,000	7.50
Direct material consumed	29,000	72.50
Direct labour cost		
Skilled (80x3x25)	6,000	15.00
Unskilled C 40 x2x 25)	2,000	5.00
Direct Expenses		
Special equipment	2,500	6.25
Special dyes	1,500	3.75
Prime cost	41,000	102.50
Works overhead		
Variable 100% in direct wages	8,000	20.00
Fixed 60% of direct wages	4,800	12.00
Less: Sale of scrap	(1,800)	(4.50)
Works cost	52,000	130.00
Administrative overhead		
10% of works cost	5,200	13.00
Cost of Production	57,200	143.00
Selling and Distribution overhead:		
20% on works cost	10.400	26.00
Cost of Sales	67,600	169.00

Chapter 12: Job and Batch Costing

Definition of Job Costing

Two basic methods of costing are: (i) Specific Order Costing, and (ii) Operations Costing. According to C.I.M.A. London Terminology,, specific order costing is " the basic costing method applicable where the work consists of separate contracts, jobs or batches." Thus job, batch and contract costing fall under the broad category of specific order costing.

According to the Terminology job costing is "a form of specific order costing: the attribution of cost to jobs". It differs from contract costing in that each job is of comparatively short duration and generally involves lesser cost. Each Job moves through processes or operations as a continuously identifiable unit. Printing, engineering works, repairs, foundries, making of special purpose tools, made to order garments, building repairs, are examples of job costing.

Features of Job Costing

The main features of job costing are:

1. Each job is separately identifiable and has its own special characteristics.
2. Following from the above the time duration required for completing jobs and costs involved in different jobs differ.
3. Above two mean that each job is a separate cost unit and each job needs to be costed separately.
4. Flow of production from process to process or department to department differs from job to job.
5. Each job is assigned a specific job order number.
6. Distinctiveness of each job remains maintained through out from its commencement to completion.
7. Jobs are generally costed after the completion of jobs.
8. Whenever required, estimated job cost sheet car, be prepared before commencement of jobs for submitting tenders for the jobs.
9. The amount involved in work-in-progress differs from time to time depending on the number and size of jobs in process.

Objectives of Job Costing

The main objectives of job order costing are:

1. It aims at ascertaining cost of each job and profit or loss in execution of different jobs.
2. It facilitates estimation of cost of similar jobs to be undertaken in future.
3. Management is able to gauge operational efficiency of jobs by comparing job estimates with the actual cost of jobs.
4. Valuation of work-in-progress on different jobs is facilitated.

Pre-requisites for Job Costing

1. The following are the pre-requisites for ensuring that the system is efficient, cost effective and achieves the objectives of job costing.
2. Accounting system should yield cost details for each job separately.
3. All required documents giving cost details for each job should be maintained, such as, work order, bill of materials, jigs and tools requisition, etc.
4. Efficient system of time booking and piece work recording should be continuously maintained.
5. A suitable system of material issues and material pricing should be prevalent.
6. Appropriate overhead absorption rates should be followed for different types of jobs.
7. Cost centres should be clearly defined.

Advantage of Job Costing

Advantages of job costing are:

1. Use of materials, labour cost and overheads for different departments, and jobs can be ascertained.
2. Operational efficiency of different factors of production and production centres is determined.
3. Cost of each job is ascertained.
4. Comparison between cost estimates and actual cost of jobs facilitates cost control.
5. Costs of similar jobs completed at different times can be compared to ascertain causes of cost variations.
6. An inter firm comparison of costs of comparable jobs can help pin-point inefficiencies,, wastages and other human failings in the organisation.
7. Absolute and comparative profitability of jobs is ascertained.
8. Helps estimating cost of similar jobs.
9. Estimated Job Cost Sheet can be prepared for submitting tenders.

10. There is encouragement for effective budgetary control of overheads because pre-determined overheads are to be applied for job costing.
11. Spoilage and defectives for each job are separately ascertained. Steps can be taken to control them.
12. Cost trends can be ascertained on the basis of job cost details of previous periods.
13. Selling price of special jobs can be determined.

Limitations of Job Costing

The main-limitations of job costing are:

1. Job costing is expensive as it involves lot of clerical work.
2. Due to lot of clerical work chances of errors are also high.
3. In the absence of developed production control system, job costing may be defective.
4. Accurate ascertainment of cost of jobs is not possible without a system of budgetary control of over heads.
5. Estimation of cost of a job on the basis of cost of other jobs could be misleading for two reasons:
    I. Jobs differ from each other despite apparent similarity in certain cases; and
    II. Costs will differ even for two absolutely similar jobs executed at different times.
6. Job costing, being basically of historical nature, suffers from all the defects of historical costing.

Batch Costing

According to CIM.A. Terminology, London, Batch Costing is' 'that form of specific order costing which applies where similar articles are manufactured in batches either for sale or use within the undertaking." Batch costing is similar to job costing as each batch of output is a cost unit and is costed separately just like each job is costed separately. However, each batch consists of a number of identical units of a product so that total batch cost divided by number of units produced in a batch gives cost per unit. In case of jobs, production is to satisfy a specific order and not for stock. In batch costing production is generally for stock though a batch of output may be undertaken when there is an immediate demand for a part of the batch output. Batch costing is generally undertaken in case of pharmaceutical production, components of automobiles, shoes, garments, engineering products, instrumentations, etc.

Features of Batch Costing

The following are main features of batch costing:

1. Each batch is a cost unit.
2. All units produced as part of a batch are identical.
3. Each batch is to be costed separately.
4. Each batch generally involves a set up cost.
5. Set up cost for each batch is more or less same irrespective of size of the batch.
6. Higher the size of a batch, lower is cost per unit.
7. Cost per unit may differ in case of different batches, though the size of the batch is same because of changes in production conditions and input costs.
8. Batch production is generally for stock.
9. In case the policy of the firm is to have batches of equal size, the size of the batch is equal to annual output requirement of the product divided by the number of batches. *
10. Larger the batch size, longer is the time interval between batches.
11. The method is used where small parts are produced in significantly large number.
12. The advantage of the method is that cost and profit per unit can be known without preparing cost sheet for each unit but by determining cost of the batch as a whole and dividing it by number of units constituting the batch.
13. Where the size of batch differs frequently, it becomes difficult to ascertain equitable charge to the batch for various types of overheads.

Job Costing: Computation of Overheads Absorption Rates & preparation of Job Cost Sheet

Q1: A shop floor supervisor of a factory presented the following cost for Job No. 421 to determine selling price

	Rs.
Material	5,600
Direct wages (180 hours @ Rs.20 per hour –	
Depts. X 80 hrs, Depts. Y 60 hrs, Depts. Z 40 hrs.)	3,600
Chargeable expenses (Special Stores Items)	400
	9,600

Add: 33 1/3 % for expenses 3,200

Total Cost 12,800

Analysis of the Profit and Loss Account for the previous year shows the following

		Rs.		Rs.
Material used		12,00,000	Sales (Less returns)	20,00,000
Direct wages:				
Depts. X	80,000			
Depts. Y	96,000			
Depts. Z	64,000	2,40,000		
Special Stores Items		32,000		
Overheads:				
Depts. X	40,000			
Depts. Y	72,000			
Depts. Z	16,000	1,28,000		
Gross Profit c/d		4,00,000		
		20,00,000		20,00,000
Selling Expenses		1,60,000	Gross Profit b/d	4,00,000
Net Profit		2,40,000		
		4,00,000		4,00,000

It is also noted that average hourly rates for the three departments, X, Y and Z are similar. You are required to calculate and enter revised cost of lob No. 421 using the actual figures for the previous year as the basis. Add 20% to the total cost to determine the selling price. Give necessary notes.

Solution: **Job Cost Sheet of Job No. 421**

Cost Detail	Rs.	Rs.
Materials		5,600
Direct Wages:		
Depts. X 80 hrs @ Rs.20	1,600	
Depts. Y 60 hrs @ Rs.20	1,200	
Depts. X 40 hrs @ Rs.20	800	3,600
Chargeable Expenses		400
Overheads:		

Depts. X 80 hrs @ Rs.10	800	
Depts. Y 60 hrs @ Rs.15	900	
Depts. X 40 hrs @ Rs. 5	200	1,900
Works Cost		11,500
Selling overheads (10% X Rs.11,500)		1,150
Total Cost		12,650
Profit (20% on Total cost = 12,650x20%)		2,530
Selling Price		15,180

Working Notes:

1. Hours of department = Departmental wages + Hourly wage rate:

   Depts. X Rs.80,000/20 = 4,000 hrs.

   Depts. Y Rs.96,000/20 = 4,800 hrs.

   Depts. Z Rs.64,000/20 = 3,200 hrs.

2. Departmental overheads on the basis of previous year's figures = Overheads + Labour hours:

   Depts. X Rs.40,000/4,000 = Rs.10;

   Depts. Y Rs.72,000/4,800 = Rs.15;

   Depts. Z Rs.16,000/3,200 = Rs.5.

3. Selling overheads as a percentage of works cost = Overheads + works Cost

   1,60,000/Rs.16,00,000 = 10%

Q2. The following direct costs were incused on Job No.415 of Standard Radio company.

Materials Rs.4,O1O

Wages:

Depts. A — 60 Hours @ Rs.3 per hr.

B — 40 Hours Rs.2 per hr.

C — 20 Hours. Rs.5 per hr

Overhead expenses for these three departments were estimated as follows:

Variable overheads: Dept. A Rs.5, 000 for 5,000 labour Hours

B Rs.3, 000for l, 500 "

C Rs. 2000 for 500

Fixed overheads: Estimated at Rs.2OOOO for 10,000 normal working Hours.

You are required to calculate the cost of Job 415 and calculate the price to give profit of 25% on selling price.

Solution:

Job Cost Sheet Job No. 415

	Amount Rs.	***Amount Rs***
Direct Materials		4,010
A- 60 Hrs x Rs. 3 180		
B- 40hrs x Rs. 2 80		
C- 20 hrs x Rs. 2 80		

Variable Overheads			
Dept.	A- 60 hrs @Rs. 1	60	
	B-40 hrs @Rs. 2	80	
	C-20 hrs @Rs. 4	80	220
Fixed Overheads 120 Hours @ Rs2			240
Total Cost			
	Profit — 25% on Selling Price		4.830
	Selling Price		16.440

Computation of overhead rates

Variable overheads per labour hour = Overhead / Labour Hours

Department A = Rs. 5000 / 5,000 = Rs. 1 per hour

B = Rs. 3,000 / 1,500hrs =Rs. 2 Per hour

C = Rs. 2,000 / 500hrs = Rs. 4 per hour

Q4. . A factory uses job costing. The following data are obtained from its books for the year 31 3.98.

	Rs.
Direct materials	90,000
Direct wages	75,000
Selling and distribution overheads	52,500
Administration overheads	42,000
Factory overheads	45,000
Profit	60,900

(a) Prepare a Job Cost Sheet indicating the Prime cost, Works cost, Production cost, Cost of sales and Sales value.

(b) In 1999, the factory receives an order for a number of jobs It is estimated that direct materials required will be Rs.1, 20,000 and direct labour Will cost Rs.75, 000. What should be the price for these jobs if factory intends to earn the same rate of profit on sales assuming that the selling and distribution overheads have gone up by I 5%? The factory recovers factory overheads. As a percentage of direct wages and administration and selling arid distribution overheads as a percentage of works cost, based on cost rates prevailing in the previous year.

Solution:

Job Cost Sheet for the year ended 31" Dec., 1998

Particulars	Rs.
Direct Materials	90.000
Direct wages	75.000

	Prime Cost	1.65.000
Factory overheads	Works Cost	45,000
Administrative overheads		42,000
Cost of Production		

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Selling and distribution overheads	Cost of Sates	
Profit	Sales Value	52.000

Calculation of Rates:

Statement of estimated cost and price of jobs in 1999

Particulars		*Rs.*
Direct Materials		1,20,000
Direct wages		75,000
	Prime Cost	1,95,000
Factory overheads (60% of direct labour)		45,000
	Work Cost	2,40,000
Administrative Overheads(20% of works cost)		69,000
	Total Cost	3,57,000
	Profit(20%of total cost)	71,400
	Selling price	4,28,400

Q6. The following costs were incurred for a job during the ir ending 31.12-1997

	Rs.		Rs.
Direct Materials	5,000	Factory Overheads	3.000
direct Wages	3.000	Administrative Overheads	4,000
Chargeable Expenses	2,000	Selling and Distribut. Overheads	3000

Selling price (or the above Job was Rs 25.000. You are required to pore a spacemen showing the profit earned for the year 1997 from the Job and an estimate ir.ca of a Job which is to be executed

in the year 1998. Materials, wages and chargeable c.ses will be Rs.8.000, Rs.10000 and Rs.200O respectively for the Job. The various over. “Is will be recovered on the following basis while calculating the estimated price.

(a) Factory overhead as a percentage of direct wages.
(b) Administration and setting and distribution overheads a percentage of factory cost.

Solution:

Job cost sheet for the year ended 31st Dec. 1997

Particulars			Rs.
Direct Materials			5,000
Direct Wages		3,000	
Chargeable Expenses		2,000	
	Prime Cost		10,000
Factory Overheads		3,000	
	Factory Cost		13,000
Administration Overhead		4,000	
	Cost of Production	17,000	
Selling and Distribution Overhead		3,000	
	Cost of Sales		20,000
	Profit		5,000
	Selling Price		25,000

1.Factory overhead as a percentage of direct wages

$$= \frac{\textit{Factory overhead}}{\textit{Direct wages}} x \qquad = \frac{3,00,00}{3,000} x\,100 = 100\%$$

2. *Admn.Overhead as a percentage of factory cost*

$$= \frac{\textit{Admn.overhead}}{\textit{Factory cost}} x\,100 \qquad = \frac{4,000}{13,000} x\,100 = 23.08\%$$

3. *Selling and dist.Overhead as a percetage of factory cost*

$$= \frac{\textit{Selling and dist.overhead}}{\textit{Factory cost}} x \qquad = \frac{3,000}{13,000} x = 23.08\%$$

5. *profit as percentage of cost of sales*

$$= \frac{\text{Profit}}{\textit{Cost of Sales}} x100 \qquad = x\frac{5,000}{20,00}100 = 25\%$$

Job cost Sheet (estimated price of job in 1998)

Particulars		Rs.
Direct Materials		8,000
Direct Wages		10,000
Chargeable Expenses		2,000
	Prime Cost	20,000
Factory Overheads (100% of direct wages)		10,000
	Factory Cost	30,000
Administration Overhead (30.77% of factory cost)		9,231
	Cost of Production	39,231
Selling and Distribution Overhead		6,923
	Cost of Sales	46,154
	Profit	11,538

	Selling Price	57,692

Q8. In respect of a factory, the following particulars have been extracted for the year 1995;

	Rs.
Cost of materials	6, 00,000
Wages	5, 00,000
Factory overheads	3, 00,000
Administration charges	3, 36,000
Sewing charge	2, 2 000
Distribution charges	1, 40,0OO
Profit	4, 20.000

A work order has to be executed in 1996 and the estimates expenses are Materials Rs.&,000. Wages Rs5, 000.

Assuming that in 1996 the rate of factory overheads has gone up by 20%, distribution charges have gone down by 10% and selling and administration changes have gone up each by 15%. at what price should the product be sold so as to earn the same rate of profit on the selling price as in 1995?

Factory overheads are based on wages and administration, selling and distribution overheads on factory cost

Solution: **Cost Sheet for the year 1995**

Particulars			***Rs.***
Materials			6,00,000
Wages		5,00,000	
	Prime Cost		11,00,000
Factory Overheads	factory or work cost	3,00,000	
Administration Charges			14,00,000
	Cost of production		3,36,000
Selling Charges			2,24,000
Distribution Charges		1,40,000	
	Total Cost or Cost of Sales	21,00,000	
	Profit		42,00,000
	Selling Price		25,20,000

Calculation of Rates:

1. *factory overhead as a percentage of wages* $= \frac{3,00,000}{5,00,000} x100 = 60\%$
2. *Administration charges as a perchantage of factory cost* $= \frac{3,36,000}{14,00,000} x100 = 25\%$
3. *Selling charges as a percentage of factory cost* $= \frac{2,24,000}{14,00,000} x100 = 16\%$
4. *Distrivution charges as a percentage of factory cost* $= \frac{1,40,000}{14,00,000} x100 = 10\%$
5. *Profit as a percentage of total cost* $= \frac{4,20,00}{21,00,00} x100 = 20\%$

Statement showing estimated cost and profit on work order in 1996

Particulars			*Rs.*
Materials			8,000
Ages			5,000
	Prime cost		13,000
Factory Overheads			
(60% of wages, increased by 20% i.e 72%)			3600
Administrating Charges			
(24% of factory cost by 15% i.e 27.6%)			4,581
	Cost of production	16,600	
Selling Charges			
(16% of factory cost increased by 15 % i.e. 18.4%)			3.084
Distribution charges			
(10% of factory cost. Decreased by 10%i.e 9%)			1,494
	Cost of sales		25,729
Profit (20% on cost of sales)		5,146	
	Price to be quoted		30,875

Chapter 4: CONTRACT COSTING

Features of Contract Costing

The following are the main features of contract costing:

1. Contracts are executed according to customer's specifications.
2. Contracts differ from each other.
3. Each contract is a separate cost unit and is to be costed separately.
4. Contracts are executed away from contractor's premises generally at customer's site.
5. Contracts take long time to complete, generally more than a year.
6. Contracts are generally of large size involving large costs.
7. Larger proportion of total costs are of the nature of direct costs. Most purchases of materials and other costs are specific to contracts. This is true of labour cost also.
8. Sometimes sub-contractors are employed for performing specialized jobs involved in a contract, e.g. electricity fittings, welding, etc.
9. Separate accounts are prepared to determine profitability of each contract.
10. Contractors receive payment for execution of contracts in instalments based on the extent of completion as certified by the expert.
11. Contracts involve problem of valuation of work-in-progress at the end of each accounting period.
12. There is need to estimate profit on incomplete contracts at the end of each accounting period.
13. Imposition of penalties is normal in case of many types of contracts.
14. Control on materials, labour and other costs is generally more difficult in case of contracts because work in generally done at a place far away from contractor's premises and work on a number of contracts may take place simultaneously at different places.

15. Contracts generally involve three parties:

(i) Contractor, who executes the contract;

(ii) Contractee, who grants the contract to the contractor. He is contractor's client,

(iii) Certifier, or evaluator, who periodically examines the progress of the contract both by inspecting the documents as well as by personally observing the work at site. He certifies the value of work done up to a point of time. This expert or certifier or evaluator works on behalf of the contractee. In case of contract for building of flats and houses, the certifier is an architect of repute; in case of building of bridges etc., it could be a firm of civil engineers; in case of construction of boiler houses, it could be a firm of boiler house engineers; and so on. This export may also function as an arbitrator in case of a dispute or a separate arbitrator may be appointed.

Types of Contracts

Contracts are generally of three types:

1. **Fixed Price Contracts:** Under these contracts a fixed price of the contract is agreed upon between the contractor and the contractee. Agreed price is paid by the contractee to the contractor. Deductions are made for defectives and penalties for delay and extra payment is made for additional work.

2. **Contracts with Escalation Clause:** In these cases the contract price is fixed with a provision that it will be increased with increase in price of materials, wage rates and other major costs, and reduced with the decline in costs. This escalation is implemented according to mutually pre-determined formula.

3. **Cost Plus Contracts:** This method is adopted where the probable cost of the contract cannot be ascertained in advance with a reasonable accuracy. In case of these contracts no fixed price is pre-determined for the contract. Contractee compensates the contractor for all allowable costs actually incurred by him. Over and above these costs the contractor is paid a fixed percentage of cost as profit or a lump sum fee of profit.

Each Contract Account is a Mini profit & Loss A/c

It gives costs, revenues and profit/loss from each contract which is transferred to General Profit Loss A/c. Details of various costs are as follows:

(A) Materials

(i) Material purchased directly for the contract or supplied from stores is debited to the contract. The former is referenced with the Bill no. and the latter with Material Requisition Note no.

(ii) Materials returned to stores are credited to Contract A/c and referenced with Material returned Note.

(iii) In case materials already issued to contract get abnormally lost due to fire, theft, accident etc., the cost of such materials is credited to Contract Ac/ and is debited to Costing P&L A/c.

(iv) In case surplus materials have been sold, the entire sale price of these materials is credited to Contract A/c and profit on such sale is debited to Contract A/c and credited to Costing P&L A/c. If such sale is at loss, the loss is credited to Contract A/c and debited to Costing P&L A/c. The net effect of this entry is that net credit to Contract A/c is equal to the cost of surplus materials sold. Contract A/c is thus not affected by abnormal gain or loss due to sale of materials.

(v) Materials lying at site at the end of the accounting period are credited to Contract A/c.

(vi) In case there is normal wastage of materials at site due to evaporation spillage and pilferage, such normal wastage may be ignored. The Contract A/c is debited with the actual materials purchased and supplied to it and credited with the actual material at site at the end of the period. The result is that such normal wastage gets automatically debited to Contract A/c.

(vii) In case of transfer of materials from one contract to another, the transferor contract is credited and the transferee contract is debited.

(viii) Stores used in producing tools should be debited to Works Expenses A/c.

(ix) In case contractee supplies certain materials to be adjusted against payment receivable from him, the Contractee A/c should be credited and Contract A/c should be debited with the value of such materials.

(x) In case contractee supplies certain materials as per terms of the contract over and above the contract price, no entry is made for this in Contract A/c but a separate note is kept of all such materials.

(B) Direct Labour/Wages

(i) All labour employed at the contract site should be debited to the concerned contract as direct labour.

(ii) Separate wage sheet should be prepared for each contract.

(iii) If it is not practicable to have a separate wage sheet for each contract, a Wage Analysis Sheet should be prepared to ascertain the wages to be debited to each contract.

(iv) Wages outstanding on account of a contract at the end of the accounting period should be debited to that contract.

(v) In case workers have been paid wages for the strike period or lay off due to machine break down or any other reason, such wages of included in wages paid on the debit side of Contract A/c, should be credited to Contract A/c and debited to Costing P&L A/c.

(C) Direct Expenses

All expenses other then materials and labour, specifically incurred for a contract, such as, insurance, watch and ward staff, engineer's salary for the contract, etc. are debited to the contract as direct expenses.

(D) Indirect Expenses

There are expenses which are common to a number of contracts, e.g., engineer's remuneration, general supervision etc. An appropriate share of such expenses is charged to contracts. Contracts also bear a share of head office expenses depending on the policy of the organization.

(E) Plant and Machinery

A complete record should be maintained of plant and machineries issued or purchased for particular contracts. There are two methods of charging contracts for the use of plant and machinery:

(a) Contract A/c is debited with the full value of plant and machinery when it is issued to or purchased for the contract and is credited by its depreciated value at the end of the accounting period. In case the plant is returned to the head office, Contract A/c is credited with the depreciated value of plant returned at the time of return. The difference between the amount on the debt side and that on the credit side represents the depreciation on plant and machinery charged to the contract.

The method is used when a plant is exclusively used for a particular contract for long time and remains at site. The Contract Ac/ shows the details of plant and machinery used for the contract.

(a) Contract is debited only with the depreciation depending on the time period for which plant and machinery has been used for the contract. To determine the charge for each contract an 'up keep account' should be maintained for each plant. All costs of maintenance, fuel, oil, etc. are debited to this account and the depreciation rate for hourly use of plant is determined. Each contract is charged on the basis of number of hours it has used plant and machinery. The method is useful for costly machinery like cranes which are used for a number of contracts, rather than earmarked for specific contract for long time. Other points relating to use of plant and machinery are as follows:

(i) In case the machinery has been purchased on hire for a specific contract the hire charges should be debited to that contract only.

(ii) In case a machinery has been lying on site but has not been used for a certain period, the possibilities are:

(a) Depreciation is not charged on plant and machinery for the period it is not used. There is neither any debit to Contract A/c nor any credit to Machinery A/c for this period.

(b) Depreciation is charged on plant and machinery for the entire period including the period when it is not used. In this case unrecovered depreciation is debited to Costing P&L A/c and is not charged to Contract A/c.

(c) Depreciation for the entire period may be debited to Contract A/c and credited to plant and machinery account.

(iii) When plant and machinery is unused for a period due to strike etc. and it is to be depreciated, such depreciation is debited to Costing P&L A/c and credited to plant and machinery account.

(iv) In case some machinery gets lost due to theft, accident, fire, etc., the depreciated value till the time of loss should be debited to Costing P&L A/c and credited to machinery account.

(v) In case machinery is returned to head office on completion of contract or otherwise, the depreciated value of machinery on the date of return should be credited to Contract A/c.

(vi) In case plant and machinery already debited to Contract A/c is sold either on completion of contract or before, the depreciated value on the date of sale should be credited to Contract A/c and any gain or loss on sale should be credited or debited to Costing P&L A/c.

(F) Cost of Maintenance Period

If the contractor is responsible for maintaining the asset created by him for a certain period, e.g., maintenance of the housing complex build by him, cost on account of such maintenance is debited to the contract account.

(G) Cost of Extra Work

In some cases the contractee wants additions, modification and major alterations in the original contract. In case these additions involve substantial extra cost these may be treated as a separate contract. Otherwise in the same account all additional cost of this extra work should be debited and additional cost of this extra work should be debited and additional payment received for such extra work should be credited to Contract A/c.

(H) Penalties

Contractee may impose penalties on contractor for delays, non compliance of specifications and other defects in execution. In certain types of contracts such penalties are normally anticipated. Such normal penalties are debited to Contract A/c and credited to Contractee A/c. In case penalties are considered abnormal, these should not be debited to Contract A/c but charged to Costing P&L A/c.

Work-in-Progress: Work Certified and Uncertified

A contract may be completed over a period of more than one year. At the end of an accounting period a major or minor portion of contract work might have been done but the contract might not have got completed. Entire work done before the stage of completion of contract is work-in-progress. This work-in-progress is subjected to scrutiny by an expert based on which it may be classified as work certified and uncertified.

Work Certified: That part of work-in-progress which has been approved or certified or authenticated and valued by the export called certifier or a valuer is known as work certified. Before certifying the work the expert carefully goes through all documents relating to work done and costs incurred there on. He also physically examines the status of work at site.

Why Work is Certified: Both the contractor as well as contractee are interested in getting the work certified because: (i) It helps monitoring the progress of work done by the contractor, (ii) It is a basis of payment by the contractee to the contractor, (iii) Estimation of profit before completion of contract is based

on work certified, (iv) In case contractor wants to get loans against work-in-progress, he should get it certified from expert.

Characteristics of Work Certified

(i) Work certified is a part of work done, generally a major part,

(ii) Work certified always cumulates, i.e. work certified at the end of the second year is total work certified till that date, i.e. work certified till the end of first year plus additional work certified in the second year, and so on.

(iii) As result work certified at the end of a subsequent period is always more than that in the preceding period, except when there is a damage to work due to floods, earthquake, etc.

(iv) Work certified is always valued at contract price, i.e., the selling price. Therefore it includes an element of profit.

(v) Generally certifier is careful and conservative while valuing work certified.

Work Uncertified

It is that part of work-in-progress which has not been approved by the expert. It may arise because by the end of an accounting period certain work may not have reached the stipulated stage of completion. Work uncertified is to be costed for material and labour spent on such work. Such work is valued at cost only. It does not include any element of profit. Also work uncertified does not cumulate. Work uncertified at the end of second year may be more or less than that at the end of the first year.

Both work certified and uncertified are part of work-in-progress and are credited to the Contract A/c. Materials, stores and plant at site at the end of a year are also credited to Contract A/c like work-in-progress at site at the end.

Profit on Incomplete Contract

Exact Profit is Ascertainable only on Completion of Contract: Exact profit or loss on account of a contract can be determined only when the contract has been completed and final payment has been received from the contractee. Therefore, when a contract gets completed within one financial year, profit is easily ascertained. However, a large number of contracts may take years to complete and recognition of profit only on completion of contract will lead to the following difficulties in case of large contracts.

Broad Guidelines for Profit Recognition

1. In case there is loss in a particular year, i.e. the cost of work certified is more than the value of work

certified, such loss must be immediately recognized and debited to Profit and Loss A/c in entirety.

2. In case there is notional profit in a particular year but significant portion of the contract has not been completed, the entire notional profit should be kept aside as 'Reserve on Work-in-progress'. What is significant cannot be defined and may differ from firm to firm. Generally, if value of work certified is ¼ th or more of the total 'value of contract, it can be said that significant portion of the contract has been completed. Thus, if the value of work certified is less than ¼ th of the total value of contract, the entire notional profit should be kept aside s reserve and no credit for profit should be taken to Profit & Loss A/c.

3. In case there is notional profit and the value of work certified is ¼ th or more of total value of contract but less than ½ of contract value:

Profit transferable to P&L A/c = Notional Profit x 1 x Cash received

3 Work certified

4. In case there is notional profit and the value of work certified is equal to or more than ½ of contract value but less than 75 percent:

Profit transferable to P&L A/c – Notional Profit x 2 x Cash received

3 Work certified

Q2: M/s. Bricks and Stones began to trade on 1st April 1988. The following was the expenditure on the contract for Rs.3, 00,000:

Materials issued to contract Rs.51, 000 Wages incurred Rs.81, 000

Plant used for contract 15,000 other expenses incurred 5,000

Cash received on account to 31st March, 1989 amounted to Rs.1, 28,000 being 80% of the work certified. Of the plant and materials charged to the contract, plant which cost Rs.3, 000 and materials which cost Rs.2,500 were lost. On 31st March, 1989 plant which cost Rs.2,500 was returned to stores; the cost of work done but uncertified was Rs.1,000 and materials costing Rs.2,300 were in hand on site. Charge 15% depreciation plant, keep in reserve 1/2 profit received and prepare a contract account from the above particulars.

Solution 2: **Contract Account**

	Rs.		**Rs.**

To Materials	51,000	By Profit & Loss a/c		
To Plant	15,000	Loss on Plant	3,000	
To Wages	81,000	Loss of Material	2,500	5,500
To Other Expenses	5,000			
To Profit c/d	27,000	By Plant returned (after depreciation)		2,125
		By Plant at site (after depreciation)		8,075
		By Work-in-progress:		
		Work Certified	1,60,000	
		Work Uncertified	1,000	1,61,000
		By Material at site		2,300
	1,79,000			1,79,000
To Profit & Loss a/c[1]	16,200	By Profit b/d		27,000
	27,000			27,000

[1] Profit kept in Reserve and transferred to work-in-progress: 27,000 x 1/2 x 80/100

Q3. A firm of builders carrying out large contracts kept in contract ledger separate account for each contract. On 30th June, 2008 the following was shown as being the expenditure in connection with contract no. 777.

	Rs.
Material purchased	58,063
Materials from stores	9,785
Value of Plant	20,000
Wages	73,634
Direct expenses	2,026
Production or establishment charges	8,720

The contract which had been commenced on 1st Feb. 2008, was of Rs. 3,00,000 and the amount certified by the architect after deduction of 20% retention money, was Rs. 1,20,800 representing 80% of work certified upto 30th June, 2008. The materials on the site at that date were valued at Rs. 9,858. The value of plant as on 30.6.2008 is Rs. 18,870.

You are required to prepare an account showing the profit on the contract to 30th June, 2008. There is no work uncertified.

Solution 3: **Contract A/c. No. 777**

Particulars	**Amount**	**Particulars**	**Amount**
To Materials Purchased	58,063	By Materials at site c/d	9,858
To Materials Form Store	9,785	By WIP (Value of work certified)	1,51,000
To Plant Issued	20,000	By Plant at site c/d	18,870
To Wages	73,834		
To Direct Exp.	2,026		
To Establishment Exp.	8,720		

To Notional Profit c/d	7,500		
	1, 79,728		**1, 79,728**
To P/L	4,000	By Notional Profit b/d	7,500
To WIP (Reserve)	3,500		
	7,500		7,500

Working Note:

Percentage of completion of contract

= Value of work certified x 100

Total contract price

= 151000 x 100 = 50.33%

300000

Amount to be transferred to profit/Loss A/c. is

2/3 x Notional profit x Cash received

Work Certified

2/3x 7500 x 80/100 = Rs. 4000

Q5: SV Construction Ltd. has obtained a contract for construction of a bridge. The value of the contract is Rs.12 lakhs and the work commenced on 1st October, 1998. The following details are shown in their books for the year ended 30th September, 1999.

Plant purchases	Rs.60,000	Wages accrued as on 30.9.1999	Rs.2,800
Wages paid	3,40,000	Materials at site as on 30.9.1999	4,000
Material issued to site	3,36,000	Direct expenses accrued as on 30.9.1999	1,200
Direct expenses	8,000	Work not yet certified at cost	14,000
General overheads	32,000	Cash received being 80% of work	6,00,000
Appropriated		Certified	

Life of plant purchased is 5 years and the scrap value is nil.

(1) Prepare the contract account for the year ended 30th September, 1999.

(2) Show the amount of profit which you consider might be fairly taken on the contract and how you have calculated it. (CA Inter Nov adapted)

Solution 5:

Contract Account

Particulars		Amount	Particulars		Amount
To Materials		Rs.3,36,000	By Work-in-progress:		
To Wages paid	3,40,000		Work Certified (W. Note 1)	7,50,000	
Add: Accrued	2,800	3,42,800	Work Uncertified	14,000	Rs.7,64,000
			By Plant at site		48,000
To Direct expenses	8,000		By Materials at site		4,000
Add: Accrued	1,200	9,200			
To Plant purchased		60,000			

To General Overheads	32,000		
To P&L A/c (Working Note 2)	19,200		
To Work-in-progress(Reserve)	16,800		
	8,16,000		8,16,000

Working Notes:

(1) Value of work certified = Cash received Rs.6,00,000 representing 80% of the work certified, hence the value of the work certified would be Rs.750,000 (i.e. 6,00,000 X 100/80).

(2) The amount of profit taken to P&L Account has been calculated as follows: Total profit made to date = Rs.36,000. Since the value of work certified is more than one-half of the contract price, 2/3rd of profit made to date as reduced on cash basis been taken to the P&L Account as shown below: Rs.36,000 x 2/3 x 80/100 = Rs.19,200

Q6. Two contracts, commenced on 1st January and 1st July 2009 respectively, were undertaken by a contractor and their accounts on 31st December, 2009 showed the following position:

	Contract 1	**Contract 2**
	Rs.	**Rs.**
Contract price	4, 00,000	2, 70,000
Expenditure:		
Materials	72,000	58,000
Wages paid	1, 10,000	1, 12,000
General charges	4,000	2,800
Plant installed	20,000	16,000
Materials on hand	4,000	4,000
Wages accrued	4,000	4,000
Work certified	2, 00,000	1, 60,000
Cash received in respect thereof	1, 50,000	1, 20,000

Work done but not certified (at cost) 6,000 8,000

The plant was installed on the date of commencement of each contract; depreciation thereon is to be taken at 10% per annum.

Prepare the Contract Accounts in the tabular form and ascertain the profit or loss to be taken to Profit and Loss Account.

Solution 6: **Contract A/c.**

Particulars	**Contract 1**	**Contract 2**	**Particulars**	**Contract 1**	**Contract**
To Expenditure			By Materials at site	4000	4000
Materials	72000	58000			
Wages	110000	112000	By Plant at site	18000	15200
			By WIP		
General Charges	4000	2800	Work Certified	2,00,000	160000
To Plant installed	20000	16000	Work uncertified	6000	8000
To Wages accrued	4000	4000	By P/L A/C. (Loss)	NIL	5600
Notional Profit C/D	18000	NIL			
	288000	192800		228000	192800
To P/L A/C(2/3x			By Notional Profit	1800	NIL
18000x150000/			b/d		
20000)	9000	NIL			
To WIP (Reserve)	9000	NIL			
	18000	NIL		**18000**	NIL

Q7: A building contractor, having undertaken construction work at a contract price of Rs.5,00,000 began the execution of the work on 1st January, 1988. The following are the particulars of the contract up to 31st Dec. 1988:

Machinery installed at site	Rs.30,000	Work certified by architect	3,90,000
Materials sent to site	1,70,698	Cash received	3,60,000
Labour at site	1,48,750	Cost of work not certified yet	9,000
Direct expenses	6,334	Materials in hand as at 31.12.1988	3,766
Overhead charges allocated	8,252	Wages accrued due on 31.12.1988	5,380
Materials returned from site	1,098	Value of machinery at 31.12.1988	22,000

It was decided that the profit made on the contract in the year should be arrived at by deducting the cost of the work certified from the total value of the architect's certificates, that 1/3rd of the profit so arrived at should be regarded as a provision against contingencies and that such provision should be increased by taking to the credit of Profit and Loss A/c only such portion of the 2/3rd profit as the cash received bore to work c bore to work certified. Prepare the contract account for the year and show the amount taken to the credit of the Profit and Loss Account.

Solution 7: **Contract Account**

To Materials	Rs.1,70,698	By Materials in hand	Rs.3,766
To Labour	1,48,750	By Machinery at site	22,000
To Direct expenses	6,334	By Materials returned	1,098
To Overhead charges	8,252	By Work-in-progress:	
To Wages accrued	5,380	Work certified 3,90,000	
To Machinery installed	30,000	Work uncertified 9,000	
To Profit c/d	56,450		3,99,000
	4,25,864		4,25,864
To Profit & Loss a/c	34,738*	By Profit b/d	56,450
To Work-in-progress(Reserve)	21,712		
	56,450		56,450

* Profit transferred to Profit and Loss A/c has been arrived at as follows:

= 56,450 x 2 x 3,60,000 = Rs.34,738

3 3,90,000

Q9. A company undertook a contract for construction of a large building complex. The construction work commenced on 1st April, 2008 and the following data are available for the year ended 31st March, 2009.

	Rs. '000
Contract Price	35,000
Work Certified	20,000
Progress payments Received	15,000
Materials Issued to Site	7,500
Planning & Estimating Costs	1,000
Direct Wages Paid	4,000
Materials Returned from Site	250
Plant Hire Charges	1,750
Wage Related Costs	500
Site Office Costs	678
Head Office Expenses Apportioned	375
Direct Expenses Incurred	*902
Work Not Certified	149

The contractors own a plant which originally cost Rs. 20 lakhs has been continuously in use in this contract throughout the year. The residual value of the plant after 5 years of life is expected to be Rs. 5 lakhs. Straight line method of depreciation is in use.

As on 31st March, 2009 the direct wages due and payable amounted to Rs. 2,70,000 and the materials at site were estimated at Rs. 2,00,000.

Required:

(i) Prepare the contract account for the year ended 31st March, 2009.
(ii) Show the calculation of profit to be taken to the profit and loss account of the year.
(iii) Show the relevant balance sheet entries.

Solution 9: **Contract Account For the year ended on 31.03.2009**

Particulars	Rs. '000'	Particulars	Rs. '000'
To Materials	7,500	By Materials returned	250
To Wages 4,000		By Materials at site	200
(+) Accrued, 270	4,270	By work in progress	
To Wage related cost	500	(a) Work certified	20,000
To Direct Expenses	902	(b) W. Uncertified	149
To Plant hire charges	1,750		
To Planning & Estimating	1,000		
To site office cost	678		
To H.O. Expenses	375		
To Dep. On Plant	300		
To Notional Profit c/d	3,324		
	20,599		**20,599**

To P & L A/c	1,662	By Notional profit b/d	3,324
To WIP (Reserve)	1,662		
	3,324		**3,324**

Since the completed work on the contract is more than 50%, the amount to be transferred to P&L is computed as follows:

$$= 2/3 \times \text{Notional Profit} \times \frac{\text{Cash Received}}{\text{Work Certified}}$$

$$= 2/3 \text{ Rs. } 3,324 \text{ thousands} \times \frac{15,000 \text{ thousand}}{20,000 \text{ thousand}}$$

= Rs. 1,662 thousands

Balance Sheet (Extracts)

As on 31.03.2009

Liabilities	Rs.	Assets		Rs.
Wages Outstanding	270	Plant at site (2,000-300)		1,700
Profit and Loss A/c	1,662			
		Materials at site		200
		Work – in – Progress		
		W. Certified	20,000	
		W. Uncertified	149	
			20,149	
		(-) Cash Recd.	15,000	
			5,149	
		(-) Reserve	1,662	3,487

Preparation of Contract Account, Contractee Account and Extract of Balance Sheet

Q10: Modern Construction Ltd. obtained a contact No. B-37 for Rs.40 lakhs. The following balances and information relate to the contract for the year ended 31st March, 2008:

	1.4.2007	**31.3.2008**
Work-in-progress		
Work certified	9,40,000	**30,00,000**
Work uncertified	11,200	**32,000**
Materials at site	8,000	**20,000**
Accrued wages	5,000	**3,000**
Additional information relating to the year 2007-2008 are:		**Rs.**
Material issued from store		**4,00,000**
Material directly purchased		**1,50,000**
Wages paid		**6,00,000**
Architect's fees		**51,000**
Plant hire charges		**50,000**
Indirect expenses		**10,000**
Share of general overheads for B-37		**18,000**
Materials returned to store		**25,000**
Materials returned to supplier		**15,000**
Fines and penalties paid		**12,000**

The Contractee pays 80% of work certified in cash. You are required to prepare:

(i) Contract Account showing clearly the amount of profits transferred to Profit and Loss A/c.

(ii) Contractee's Account.

(iv) Extract of Balance Sheet.

Additional information relating to the year 2007-2008 are:	Rs.
Material issued from store	4,00,000
Material directly purchased	1,50,000
Wages paid	6,00,000
Architect's fees	51,000
Plant hire charges	50,000
Indirect expenses	10,000
Share of general overheads for B-37	18,000
Materials returned to store	25,000
Materials returned to supplier	15,000
Fines and penalties paid	12,000

Solution 10:

(i)Contract No. B-37 Account for the Year ended 31st March, 2008

To WIP b/d (9,40,000 + 11,200)	9,51,200		
To Stock (materials) b/d	8,000	By Material returned to Store	25,000
To Material issued	4,00,000	By Material returned to Suppliers	15,000
To material purchased	1,50,000	By WIP c/d	
To Architect's fees	51,000	Certified work 30,00,000	
To Plant hire charges	50,000	Uncertified work 32,000	30,32,000
To Indirect expenses	10,000	By Material stock c/d	20,000
To Wages incurred	5,98,000		
(6,00,000 + 3,000 – 5,000)			
To General overheads	18,000		
To Notional profit c/d	8,55,800		
	30,92,000		30,92,000
To Profit and Loss A/c			
2/3 x 8,55,800 x 80/100	4,56,427	By Notional Profit b/f	8,55,800
To WIP Reserve c/d	3,99,373		
	8,55,800		8,55,800

Note: Fines and penalties are not shown in contract accounts.

(ii) Contractee's Account

To Balance c/d	24,00,000	By Balance b/d (80% of 9,40,000)	**7,52,000**
	_____	By Bank	**16,48,000**
	24,00,000		**24,00,000**

(iii)Balance Sheet (Extract) as on 31.03.2008

Profit and Loss A/c 4,56,427		Materials stock at site	20,000
Less: Fines 12,000	4,44,427	Material stock in store	25,000
Outstanding Wages	3,000	WIP:	
		Work certified	30,00,000
		Work uncertified	32,000
			30,32,000
		Less: Advance	24,00,000
			6,32,000
		Less: WIP Reserve	3,99,373
			2,32,627

Preparation of Contract Account, Contractee Account, Extract of Balance Sheet and Valuation of Work Certified and Uncertified

Preparation of Contract Account and Extract of Balance Sheet

Q11. The following details are available from the books of accounts of a contractor with respect to a particular construction work for the year ended 31st March, 2009:

		Rs.
Contract price		91,00,000
Cash received from Contractee (90% of work certified)		71,91,000
Material sent to site		35,82,600
Planning and estimation cost		3,50,000
Direct wages paid		32,62,700
Cost of plant installed at site		7,00,000
Direct expenses		1,68,000
Establishment expenses		2,03,000

Material returned to store	14,840
Head office expenses apportioned	2,50,000
Cost of work uncertified	3,17,000
On 31st March, 2009:	
Material at site	85,400
Accrued direct wages	78,120
Accrued direct expenses	9,310
Value of plant (as revalue)	6,16,000

Required:

(i) Prepare the Contract account for the year ended 31st March, 2009.

(ii) Show the relevant balance Sheet entries. (CA PE II June 2009)

Solution 11:

Contract Account for the year ended 31st March, 2009

		Rs.		Rs.
To Material sent to site		35,82,600	By Materials returned	14,840
To Direct wages: Paid	32,62,700		By Material at site	85,400
Accrued	78,120	33,40,820	By Work-in-progress:	
To Planning and estimation cost		3,50,000	Cost of work uncertified	3,17,000
To Direct expenses: Paid	1,68,000		Value of Work certified	79,90,000
Accrued	9,310	1,77,310		
To Depreciation on Plant (7,00,000 – 6,16,000)		84,000	7191000 x 100/90	
To Establishment expenses		2,03,000		
To Head Office Expenses		2,50,000		
To Notional Profit C/d				

		84,07,240		84,07,240
To P&L A/c		2,51,706	By Notional Profit B/d	4,19,510
To Reserve		1,67,804		
		4,19,510		4,19,510

Profit Transferred to P&L A/c

= 2 x Profit x Cash Received

3 Work Certified

= 2 x 4,19,510 x 71,91,000 = Rs.2,51,706

3 79,90,000

Extract of Balance Sheet as on 31st March, 2009

Liabilities	**Amount**	**Assets**	**Amount**
P&L A/c	2,51,706	Work-in-progress	
Accrued Wages	78,120	Value of work certified	79,90,000
Accrued Expenses	9,310	Cost of work uncertified	3,17,000
			83,07,000
		Less: Reserved Profit	(1,67,804)
			81,39,196
		Less: Cash received	(71,91,000)
			9,48,196
		Material at site	85,400

Q12. A company of contractors began to trade on 1st Jan., 2009. During 2009 the company was engaged on only the contract of which the contract the contract price was Rs. 5,00,000.

Of the plant and materials charged to contract, plant costing Rs. 5,000 and material costing Rs. 4,000 were lost in an accident. On 31st Dec., 2009, plant costing Rs. 5,000 was returned to the stores. Cost of work uncertified, but finished Rs. 2,000 and materials costing Rs. 4,000 were in hand on site.

Charge 10% depreciation on plant and compile Contract Account and Balance Sheet from the following:

Share Capital		Rs.	1,20,000
Creditors			10,000
Cash received (80% of work certified)			2,00,000
Land and building	Rs. 43,000		
Bank balance	25,000		
Charged to contract			
Materials	90,000		
Plant	25,000		
Wages	1, 40,000		
Expenses	7,000		
	3,30,000		3,30,000

Solution 12:

Contract Account for the year ended on 31.12.2009

	Rs.		Rs.
To Materials	90,000	By P & L A/c. (Materials lost)	4,000
To Wages	1, 40,000	By Materials at site c/d	4,000
To Expenses	7,000	By Work-in-Progress	
To Dep. On Plant	2,000		
		W. Certified (2,00,000 x 100/80)	2,50,000
To Notional Profit c/d	21,000	W Uncertified	2,000
	2,60,000		2,60,000
To P & L A/c.			
(2/3x21,000x80/100)	11,200	By Notional Profit b/d	21,000
To WIP (Reserve)	9,800		
	21,000		21,000

Plant Account

	Rs.		Rs.
To Opening balance	25,000	By P & L A/c. (Plant lost)	5,000
		By Depreciation (10% of 20,000)	2,000
		By Plant returned	
(5,000 Less 10% Dep.)	4,500		
By Closing balance (15,000 less	13,500		
10% Dep.)			
	25,000		25,000

Note :

1. It is assumed that the plant of Rs. 5,000 was lost at the beginning of the year.
2. Since work certified is equal to half of contract price, profit has been ascertained on the basis of 2/3rd and basis.

Balance Sheet as on 31st December 2009

Particulars		Rs.	Particulars	Rs.	Rs.
Share Capital		1, 20,000	Land and building		43,000
Profit on Contract	11,200		Plant at stores	4,500	
Less Abnormal loss	9,000	2,200	Plant at site	13,500	18,000
Creditors		10,000	Materials at site		4,000
			Work in Progress		
			Certified	2,50,000	
			Uncertified	2,000	
				2,52,000	
			Less Contractee advance		
				2,00,000	
				52,000	
			Less: Reserve on WIP	-9,800	42,200
			Bank		25,000
	1,32,200				1,32,200

Q13: A company undertook a contract for construction of a large building complex. The construction work commenced on 1st April, 1993 and the following data are available for the year ended 31st March, 1994.

	Rs. 000
Contract Price	35,000
Work certified	20,000
Progress Payments Received	15,000
Materials Issued to Site	7,500
Planning & Estimating Costs	1,000
Direct Wages Paid	4,000
Materials Returned from Site	250
Plant Hire Charges	1,750
Wage Related Costs	500
Site Office Costs	678
Head Office Expenses apportioned	375
Direct Expenses incurred	902
Work not certified	149

The contractors own a plant which originally cost Rs.20 lakhs has been continuously in use in this contract throughout the year. The residual value of the plant after 5 years of life is expected to be Rs.5 lakhs. Straight line method of depreciation is in use.

As on 31st March, 1994 the direct wags due and payable amounted to Rs.2, 70,000 and the materials at site were estimated at Rs.2, 00,000. Required:

(i) Prepare the contract account for the year ended 31st March, 1994.

(ii) Show the calculation of profit to be taken to the profit and loss account of the year.

(iii) Show the relevant balance sheet entries. (CA Inter Nov. 1994)

Solution 13:

(i) Contract Account for the year ended 31st March, 1994

Particulars	Amount In ('000 Rs.)	Particulars	Amount In ('000 Rs.)
To Materials used	7,500	By Materials returned from site	250
To Direct Wages			
Paid: 4,000		By Materials at Site	200
Add: Accrued 270	4,270	By Cost to date C/d (Bal. fig.)	16,825
To Wage related Costs	500		
To Direct expenses incurred	902		
To Planning & Estimated Costs	1,000		
To Plant Hire Charges	1,750		
To Site Office Costs	678		
To Head Office expenses apportioned	375		
To Depreciation on Plant (W.N.-1)	300		
	17,275		17,275
To Cost to date b/d	16,825	By work-in-progress	
To Notional Profit c/d	3,324	Work certified	20,000
		Cost of Work not certified	149
	20,149		20,149
To Profit & Loss A/c (and. ii)	1,662	By Notional Profit b/d	3,324
To W.I.P. Reserve A/c (Bal. fig)	1,662		
	3,324		3,324

(ii) Profit to be transferred to Profit & Loss Account

$$\% \text{ of Completion} = \frac{\text{Work certified}}{\text{Contract price}} \times 100$$

$$= \frac{20,000}{35,000} \times 100 = 57.143\%$$

Since the Completion of Contract is greater than 50% but not greater than 90%, 2/3rd of the Notional Profit in the ratio of cash received to work certified will be transferred to Profit & Loss A/c.

$$= 2/3 \times \text{Notional Profit} \times \text{Cash Received / Work Certified}$$

= 2/3 x 3,324 x 15,000 = Rs.1, 662

20,000

(iii) Balance Sheet (Extract) as on 31.03.1994

Liabilities	Amount (Rs. 000)	Assets		Amount (Rs. 000)
Working Notes: Calculation of Depreciation on Plant			**Amount (Rs. 000)**	
		Plant at Site (Rs.2,000 – Rs.300)	2,000	1,700
Original Cost of Plant	1,662	Materials at Site		200
Wages Accrued	270	Work-in-progress		
Less: Residual Value		Work certified	(500) 20,000	
Chargeable Cost of Plant (A)		Work uncertified	1,500 149	
			20,149	
Life of the Plant (B)		Less: WIP Reserve	5 Yrs (1,662)	
			18,487	
Annual Depreciation (A/B)		Less: Contractee A/c	300 (15,000)	3,487

Chapter 9: Budgetary Control

Meaning budget

The budget is an estimate prepared in advance of the period to which it relates. Budget result from forward thinking and planning. The essence of a budget is a detailed plan of operations for some specific future period, followed by a system of records which will serve as a cheque upon the plan. It is always expressed in term of money and quantity. It is the policy to be followed during the budget period for attainment of specified organizational objectives. A budget is an approved plan of action that is set only by seasoned executives. Budget may be for income, expenditure and capital.

Characteristics of a Budget:

1. A Budget is concerned for a definite future period.
2. A budget is a written document.
3. A Budget is the detailed plan of all the economic activities of a business.
4. A budget is prepared for the attainment of pre-determined objectives.
5. All the departments of a business unit co-operate for the preparation of a business budget.
6. Usually a budget is prepared in monetary units but budgets for some departments are also prepared in physical units like the budget of production department, stores department and sale department.
7. Budget works as a standard and all departmental plans evaluated on the basis of a budget.
8. A Budget is an instrument of achieving business objectives and it is not an end itself.
9. Every year a budget is prepared and throughout the year it is implemented, corrected and controlled, therefore, it is a continuous process.
10. Budget helps management in planning, co-ordination and control. Thus, Budget is an effective instrument for management. It also helps to check an evaluate the performance of each department.

Meaning of Budgetary Control

The institute of cost management Accountants of England and Wales defines Budgetary Control as "the Establishment of budgets relating the responsibilities of executives to the requirement of executives to the requirements of a policy, and the Continuous comparison of actual with budgeted results either to secure by individual action the objective of that policy or to provide a base for its revision". Broadly speaking it is a system of achieving the firm's objectives with minimum possible cost.

The essential features of budgetary control as per above definition are as follows:

i. Budgetary control requires setting up of the different kinds of budgets which are related to the responsibilities of the executives for the implementation of the policy.
ii. The actual performances are compared with the budgeted limits or targets, for the purpose of cost-control and cost-reduction.
iii. Where the comparison reveals an unfavourable result, corrective measures are taken to improve upon.

Q2: The following information has been made available from the records of a company for last six months of 2006 (and the sales of January 2007) iii respect of product X

(i) The units to be sold in different months are:

July2006	1.100	November 2006	2.500
Aug2006	1,100	December 2006	2,300
September 2006	1, 700	January 2007	2,000
October 2006	1, 900		

ii) Finished units equal to half the sales of the next month will be in stock at the end of every month (including June 2006).

(ii) Budgeted production and production cost for the year ending 31st Dec., 2006 are thus:

Production (units)	22,000
Direct materials per unit	Rs. 10
Direct wages per unit	Rs. 4
Total factory overhead apportioned to production	Rs. 88,000

You are required to prepare:

(a)) Production budget for the six months of 2006, and.

(b) Summarized production cost budget for the same period.

Solution:

	July Units	**Aug. Units**	**Sep. Units**	**Oct. Units**	**Nov. Units**	**Dec. Units**	**Total**
Estimated sales Add: Closing stock	1 ,100 550	1 ,100 850	1 ,900 950	1 .900 1,250	2,500 1,150	2,300 1 ,000	
Less: Opening stock	1,650 550	1,950 550	2,650 850	3,150 950	3,650 1, 250	3,300 1,150	
Production	1 ,100	1,400	1 ,800	2,200	2,400	2,150	11,050

Production Cost Budget

For the six months ending Dec.. 2006

		(Production: 11 ,050 units)
Direct material	— @ Rs. 10 for 1 1 ,050 units	**1,10,500**
Direct wages	@ Rs. 4 tar 1 1 ,050 units	**44,200**
factory overhead	@ R& 4 for 1 1 .050 units	**44,200**
Total Production Cost		**195900**

Factory overhead per unit = Rs 88000 ÷ 22,000 units = Rs. 4

Production & Row Material purchase budget

Q3: The following are the estimated sales of company for eight month ending 30.11.2007

Month	Estimated sales (unit)
April 2007	12,000
May 2007	13,000
June 2007	9,000
July 2007	8,000
August 2007	10,000
September 2007	12,000
October 2007	14,000
November 2007	12,000

As a matter of policy the company maintain the closing balance of finishing goods and row material as following

Stock item	closing balance of a month
Finishing good	50%of the estimated for next month
Row material	estimated sales for the next month

Every unit of production requires 2kg. of row material costing Rs.5 per kg.

Prepare production budget (in units) and row Material purchase budget (in unit and cost) of the company for half year ending 30 September,2007

Solution:

Production budget (unit) for the half year ending 30th September 2007

Month	**Sales in (unit)**	**Closing Balance 50%of the estimate sales for the next month**	**Opening balance**	**production**
1	**2**	**3**	**4**	**5=(2)+(3)-(4)**
2007				
April	12,000	6,5000	6,000	12,500
May	13,000	4,5000.	6,500	11000
June	9,000	4,000	4,500	8,500
July	8,000	5,000	4,000	9,000
August	10,000	6,000	5,000	11,000
September	12,000	7,000	6,000	13,000
	64,000			65,000

Purchase budget (cost & unit) for the year ending 30th September 2007

Month	**Production in unit**	**Consumption (kg) @ 2kg. Per unit**	**Closing balance**	**Opening balance**	**Purchase in kg**	**Rate Rs.**	**Amount Rs.**
2007	12,500	25000	22000	25000	22000	5	110000
April	11,000	22000	17000	22000	17000	5	85000
May	8,500	17000	18000	17000	18000	5	90000
June	9,000	18000	22000	18000	22000	5	11.000
July	11,000	22000	26000	22000	26000	5	130000
August	13,000	26000	2600	26000	2600	5	130000
September	65,000	130000				5	655000

Q4: The sales manager of XYZ Ltd. reports that next year he expects to sell 50,000 units of a certain product.

Two kinds of raw materials A and B are required for manufacturing the product. Each unit of the product requires 2 kg of A and 3 kg of B. The estimated opening balances at the commencement of the next year are — Finished Product, 10,000 units; A, 12,000 kg; 8 15,000 kg. The desirable closing balances at the end of the next year are: Finished product. 14,000 units; A, 130O0 kg; B, 16,000 kg. Draw a Materials Purchase Budget for the next year.

Solution:

Sale during the year	50,000 units
Add- Desired Stock at the end of the next year	14,000 units
Total	64,000 units
Less: Expected stock at the beginning of the next year Estimated Production	10,000 units
	54.000 units

Q20: Prepare a flexible budget for Production at 80 per cent and 100 per cent activity on the basis of the following information:

Production at 50% capacity	5,000 units
Raw materials	Rs. 80 per unit
Direct labour	Rs. 50 per unit
Direct expenses	Rs. 15 per unit
Factory expenses	Rs. 50.000(50% fixed)
Administration expenses	Rs. 60.000(60% variable)

Solution:

Flexible Budget for the period

Cost	*80% capacity*		*100% capacity*	
	8,000 units		*10,000 units*	
	Per unit	Total	Per unit	Total
	Rs.	Rs.	Rs.	Rs.
Raw material	80.00	6.40,000	8000	8,00,000
Direct labour	500O	4,00,000	5000	5,00,000
Direct expenses	15.00	I .20.000	1500	150,000
Prime cost	145.00	11,60,000	145.00	14,50,000

Factory expenses:

Variable	5.00	40,000	5.00	50,000
Fixed	3.125	25,000	2.50	25,000
Works cost	153. 125	12, 25,000	152.50	15, 25,000

Administration expenses:

Variable	7.20	57,600	7.20	72,000
Fixed	3.00	24,000	2.40	24,000
Total cost	163.325	1 306,600	162.10	16, 21,000

In flexible budgets, the following important points should be noted:

1A total fixed cost for each level remains unchanged.

2. per unit fixed cost decreases when level of output increases and vice versa.

3. Total variable cost increases in proportion to increase in the level of output and.

4. Per unit variable cost remains unchanged at each

Marginal Costing

Contribution: Contribution is an important concept in marginal costing. The term contribution' is the term given to the difference between Sales and Marginal cost. It is the difference between sales and the variable cost of sales. Contribution is short for 'contribution to fixed costs and profits' The idea is that after deducting the variable costs from sales, the figure remaining is the amount that contributes to fixed c, and, once fixed costs are covered, to profits. Basic Marginal costing equation is costs

	Rs
Sales	X
Less: Variable Cost	(X)
Contribution	X
Less: Fixed Costs	X

Profit	X

Contribution can be represented as:

Contribution = Sales - Variable (Marginal) Cost
Or Contribution (per unit) = Selling Price - Variable (or marginal) cost per unit
or Contribution = Fixed Costs + Profit (- Loss)

Contribution at first contributes towards the fixed overhead and when the fixed overheads are recovered the same contributes towards profit. As soon as fixed costs are covered by the contribution, every rupee of additional contribution is an addition to the profit i.e. contribution will become profit after meeting the fixed costs. It is needless to say that higher the total contribution higher will be the profit since fixed overhead remains constant. Thus, the aims and objectives of every firm should be to maximize the amount of contribution.

Advantages of Contribution: The concept of contribution is a valuable aid to management in making managerial decisions. A few benefits resulting from the concept of contribution margin are given below:-

1. It helps the management in the fixation of selling prices.
2. It assists in determining the break-even point.
3. It helps management in the selection of a suitable product mix for profit maximization.
4. It helps in choosing from among alternative methods of production; the method which gives highest contribution per limiting factor is adopted.
5. It helps the management in deciding whether to purchase or manufacture a product or a component.
6. It helps in taking a decision as regards to adding a new product in the market.

Difference between Contribution and Profit:

Contribution	*Profit*
1. Contribution is the sales value less marginal cost.	Profit is the sales value less total cost.
2. It includes fixed cost and profit C = F + P	It does not include fixed cost.
3. It is marginal cost concept.	It is total cost concept.
4. Contribution analysis requires knowledge of break-even concept.	It does not require any such concept.
5. Contribution above BEP is profit.	Profit is expected only after covering Variable cost and fixed cost.

Q2. Indian Plastics made plastic buckets. An analysis of their accounting reveals :

Variable cost per bucket Rs.20

Fixed cost Rs.50, 0000 for the year

Capacity 2OOO buckets per year

Selling price per bucket Rs.7O

Required:

I. Find the break-even point.

ii find the number of buckets to be sold to get a profit of Rs.30,000.

iii. If the company tan manufacture 600 buckets more per year in addition to buckets as in (ii) above

with an additional fixed cost of Rs2,000, what should be the selling price to maintain the profit per bucket as at(ii) above ?

Solution:

i. BEP = Fixed cost/contribution per unit

= 50,000/50=1,000 buckets.

ii. Buckets to be sold for desired profit of Rs. 30,000

$$\text{Sales for Desired Profit} = \frac{\text{Fixed Cost} + \text{Desired profit}}{\text{Contribution per unit}}$$

$$= \frac{50{,}000 + 30{,}000}{50}$$

$$= 80{,}000/50$$

$$= 1{,}600 \text{ buckets}$$

iii. Computation of new selling price: **Rs.**

Profit per bucket at sales of 1,600 buckets:		1, 12,000
	Sales (1,600 x 70).	32,000
Less:	Variable cost 1.600 x 20	80,000
	Contribution	50,000
Less:	Fixed Cost	
	Profit	30,000

Profit per bucket 30.000/1,600 = 18.75

Total sales 1,600 + 600 = 2.200 buckets.

Total Profit desired 2,200 x 18.75 = Rs. 41,250

Let selling price be 'x'

The following equation can be made:

Total Sales	=	Total cost + Profit
2,200x	=	20(2.200) + 52,000 + 41,250
2,200x	=	1, 37,250
or x	=	Rs.62.39 per bucket.

Q3: A retail dealer in garments is currently selling 24,000 shirts annually. He supplies the following details for the year ended 31 December, 2001.

	Rs.
Selling price per shirt	40
Variable cost per shirt	25
Fixed Cost : Staff salaries for the year	1 ,20,000
. General office costs for the year	80.000
Advertising costs for the year	40,000

i. Calculate the breakeven point and margin of safety in sales revenue and shirts sold.
ii. Assume that 20,000 shirts were sold in a year Find out the net profit of the firm.
iii. If it is decided to introduce selling commission of Rs.3 per shirt, how many shirts would require to be sold in a year to earn a net income of Rs.15, 000.

Solution:

i. BEP = Fixed cost/Contribution per unit

= 2, 40, 00/15 = 16,000 units or

= 16,000×40= Rs. 6, 40,000

Margin of Safety (MS) = Actual sales – Break-even sales

= 24,000×40= 6, 40,000

= 9, 60, 00 – 6, 40,000

= Rs. 3, 20,000

ii. Net Profit when 20,000 shirts are sold:

Contribution: 20,000×15	Rs. 3, 00,000
Less: Fixed cots	Rs. 2, 40,000

Profit Rs. 60,000

iii. Sales for desired profit:

$$= \frac{\text{Fixed Cost+Desired Profit}}{\text{New Contribution per unit}}$$

$$= \frac{2,40,000+15,000}{15 - 3}$$

$$= 21,250 \text{ units}$$

Q13: A retail dealer in garments is currently selling 24,000 shirts annually. He supplies the followings details or the year ended 31 December, 2006:

	Rs.
Selling price pet shirt	40
Variable cost per shirt	25
Fixed cost:	
Staff salaries for the year	1, 2O, 000
General office costs for the year	80,000
Advertising costs for the year	40,000

As a cost accountant of the firm you are required to answer the following each part independently:

1. Calculate the break-even point and margin f safety in sales revenue.

2. Assume that 20,000 shirts were sold in a year. Find out the net profit of the firm.

3 If it is decided to introduce selling commission of Rs. 3 per shirt, how many shirts would require to be sold in a year to earn a net income of Rs.15, 000.

4. Assuming that for the year 2007 an additional staff salary of Rs. 33,000 and increase in selling price by 15% is anticipated, what should be the beak-even point in number of shirts and sales revenue?

Solution:

1. _

Fixed cost = Rs. 1, 25,000 Staff Salaries

+ Rs. 80,000 Office Costs

+ Rs. 40,000 Advertisement costs

Total = Rs. 2, 40,000

Margin of Safety (MS) = Actual Sales – B.E.P.

= Rs. 9, 60,000-Rs. 6, 40,000=Rs. 3, 20,000

2. At 20,000 shirts sales

	Rs.
Fixed cost	2, 40,000
Variable cost (20,000 × Rs.25)	5, 00,000
Total cost	7, 40,000
Sale (20,000 × Rs. 40)	8, 00,000
Hence, profit	60,000

3. variable cost per unit with communication = Rs. (25 + 3) = Rs. 28

Contribution =Rs. 12 i.e. RS. (40 - 28)

Required =

=

4. Increase selling price = Rs. 40 + 15% = Rs. (40 + 6) = Rs. 46

Variable cost = Rs. 25

Contribution (C) = Rs. (46-25) = Rs. 21

Fixed cost (FC) = Rs. 2,40,000 + Rs. 33,000 = Rs. 2,73,000

BEP = _____ _____

Sales at BEP = 13,000 × Rs. 46 = Rs. 5, 98,000

Q14: From the following data calculate the breakeven point:

Direct material per unit.	Rs. 3
Direct labour per unit	Rs. 2
Fixed overhead (Total)	Rs. 10,000
Variable overhead	100% on direct labour
Selling price per unit	Rs. 10
Trade discount	5%

Also determine the net profits, if sales are 10% above the break-even point

Solution:

Marginal cost statement

	Rs.
Net selling price (Rs. 10-5% discount)	9.50
Direct material	3.00
Direct labour	2.00
Variable overhead	2.00
Variable cost	7.00
Contribution (Rs. 9.50 – 7.00)	2.50

Break even point = – ——— 4,000 units

B.E. point (in Rs.) = 4,000 units @ Rs.10 = Rs. 40,000

Less: 5% discount 2,000

Net sales value at BEP point Rs. 38,000

When sales are 10% above B.E. point

Sales = 4,000 + 10% = 4,400 units

Contribution (4,400 units × Rs. 2.50) Rs. 11,000

Less: Fixed cost Rs. 10,000

Profit Rs. 1,000

Q15: Electro Company sold 10,000 units last year at a price of Rs. 500 each. The cost structure per unit is as follows:

	Rs.
Materials	100
Labour	50
Variable overheads	25
Variable cost	175
Fixed overheads -	200
Total cost	375

Due to competition, the price has to be reduced to Rs. 425 for the coming year. Assuming that there will be no change in costs, find out how many units shall be sold to ensure the same amount of total profit as last year.

Solution:

Statement of marginal cost and contribution

	Per unit	Total
	Rs.	(10,000units) Rs.
(A) Sales	500	50,00,000
Materials	100	10, 00,000
Labour	50	5, 00,000
Variable overheads	25	2, 50,000
(B) Variable cost	175	17,50,000
Contribution (A - B)	325	32, 50,000
Less fixed overheads	200	20, 00,000
Profit	125	12, 50,000

Q17: M/s. Nitra Stationers manufactures plastic files office use. The break-up of its cost and sales is as follows

Variable cost per rile	: Rs.40
Fixed Cost	: Rs.60.000 per year
Production Capacity	: Rs.3, 000 per year
Selling Price	: Rs 100 per file

You are required to compute the flowing:

(i) Break-even point: ***[Ans: 1,000 files]***

(ii) Number of files to be sold to earn a net profit of Rs 30,000. ***[Ans: 506 files]***

(iv) If the firm manufactures and sells 500 files more per year with an additional fixed cost of Rs.2.000, what should be the selling price to earn the same amount of profit per file as in above? ***[Ans: Rs.91]***

Solution:

(iii) New FC-60,000 + 2,000 = Rs. 62,000; New Sale = 1,500 + 500 = 2,000 files

Let new selling price per file be 'S"

$$2{,}000\,\frac{62{,}000+20\,(2{,}000)}{S\text{-}40};\ \text{or}\ 2{,}000\ (S\text{-}40) = 62{,}000 + 40{,}000$$

$$2{,}000S\text{-}80{,}000 = 1{,}02{,}000S = 1{,}02{,}000 + 80{,}000 = 1{,}82{,}000$$

S= New Seeling Price = 1,82,000 + 2,000 = Rs. 91

(i) BEP $= \frac{F}{S\text{-}V} = \frac{60{,}000}{100\text{-}40} = 1{,}000$ Files

(ii) Desired Sales $= \frac{F+P}{S\text{-}V} = \frac{60{,}000+30{,}000}{100\text{-}40} = 1{,}500$ Files

Profit per file $= \frac{Rs.30{,}000}{1{,}500} = Rs.\ 20$

Q18: A company sold in two successive periods 7.000 units and 9.000 units and has incurred a

Loss Rs. 10,000 and Rs 10.000 as profit respectively The selling price per unit can be assumed at Rs 100

You are required to calculate:

(a) The amount of fixed cost

(b) The amount of sales to break-even

(c) The amount of sales to earn a profit of Rs. 40,000.

Solution:

	Period I	*Period II*	*Difference*
	Rs.	Rs..	Rs.
Sales (@ Rs. 100 per units)	7,00,000	9,00,000	2,00,000
Profit/ Loss(-)	(-)10,000	10,000	20,000

Contribution period I (10% of Rs. 7, 00,000) Rs. 70,000

Add: Loss in period I Rs. 10,000

(a) Fixed cost Rs. 80,000

Note: Fixed cost= contribution – Profit (or contribution + loss)

(b) Breakeven point= = =Rs. 8,00,000

(c)

Number of units to break even = 8,00,000 ÷ 100 = 8,000 units

(d) Required sales =

=

Q19: A company has annual fixed costs of Rs. 14.00,000. In 2004 sales amounted to

Rs. 60.00,000 as compared with Rs 45,O0,00 in 2003 and profit in 2004 was Rs.4,20,000 higher than in 2003

(i) At what level of sales does the company break-even?

(ii) Determine profit of loss on a precast sales volume. Of Rs. 80, 00,000

If there is a reduction in selling price in 2005 by 10% ar1 the company desires to earn the same profit as in 2004. What would be the required sales volume?

Solution:

P/V ratio = × 100 =

=

(i) Breakeven point = =

(ii) When sales are Rs. 80,00,000

Contribution = 80, 00,000	28%	Rs.	22, 40,000
Less: Fixed cost			14,00,000
	Profit		8,40,000

(iii) New P.V. ratio:

Assume old selling price is Rs. 100 per unit. Since old P/V ration is 28% old variable cost per unit will be 72% of Rs. 100 Rs. 72

New selling price per unit is Rs. 100 less 10% = Rs. 90. Variable cost per unit will remain unchanged (Rs. 72 per unit). New contribution per unit will be Rs.18.

New P/V ratio = – —

Profit in 2004 = (60,000×28%) – 14,00,000= Rs. 2,28,000

Sales to earn the desired profit (in 2005)

=

–

Q20: A company manufactures a single product having a marginal cost of 0.75 a unit.

Fixed costs are Rs. 12,000. The market is such that up to 40,000 units can be sold at Rs. 1.50 but any additional sales must be made at Re. 100 a unit. There is a planned profit of Rs. 20.000 How many units must be made and sold?

Solution:

Planned profit	=Rs. 20,000
Add: Fixed cost	Rs. 12,000
Contribution required	Rs. 32,000
Contribution per unit	=Rs. 1.50-0.75=Rs. 0.75

Contribution from 40,00 units=40,000×0.75=Rs. 30,000

New contribution =Rs. 1-0.75=Rs. 0.25 p.u

Additional contribution of Rs. 2,000 @ Rs. 0.25 p.u. will require 8,000 units

Total sales required= 40,000+8,000=48,000 units.

Q21. In a purely competitive market, 10,000 pocket transistors can be manufactured and 50k and a certain profit is generated. It is estimated that 2,000 pocket transistors need be manufactured and sold in a monopoly market to earn the same profit. Profit under both the conditions is targeted at Rs. 2,00,000 the variable cost per transistors is Rs 100 and me total fixed cost is Rs. 37,000.

You are required 10 find out the unit selling period both under monopoly and competitive conditions.

Solution:

Under monopolistic conditions

Suppose × is the selling price per unit

Sales = 2,000 ×

Variable cost =2,000 × Rs. 100 + Rs. 2, 00,000

Fixed cost =Rs. 37,000

Desired profit =Rs. 2, 00,000

S – V =F + P

Or 2,000 × - 2, 00,000=37,000+2, 00,000

Thus, selling price =Rs. 218.50 per unit

Under competitive conditions

Suppose × is the selling price per unit

Sales =10,000 ×

Variable cost =10,000 × Rs. 100 or Rs. 10,00,000

Fixed cost =Rs. 37,000

Desired profit =Rs. 2,00,000

Or 10,000 × - 10,00,000 =2,37,000

This selling price =Rs. 123.70 per unit