

Model Question bank

Cost and Management Accounting for Decision Com: 2.7

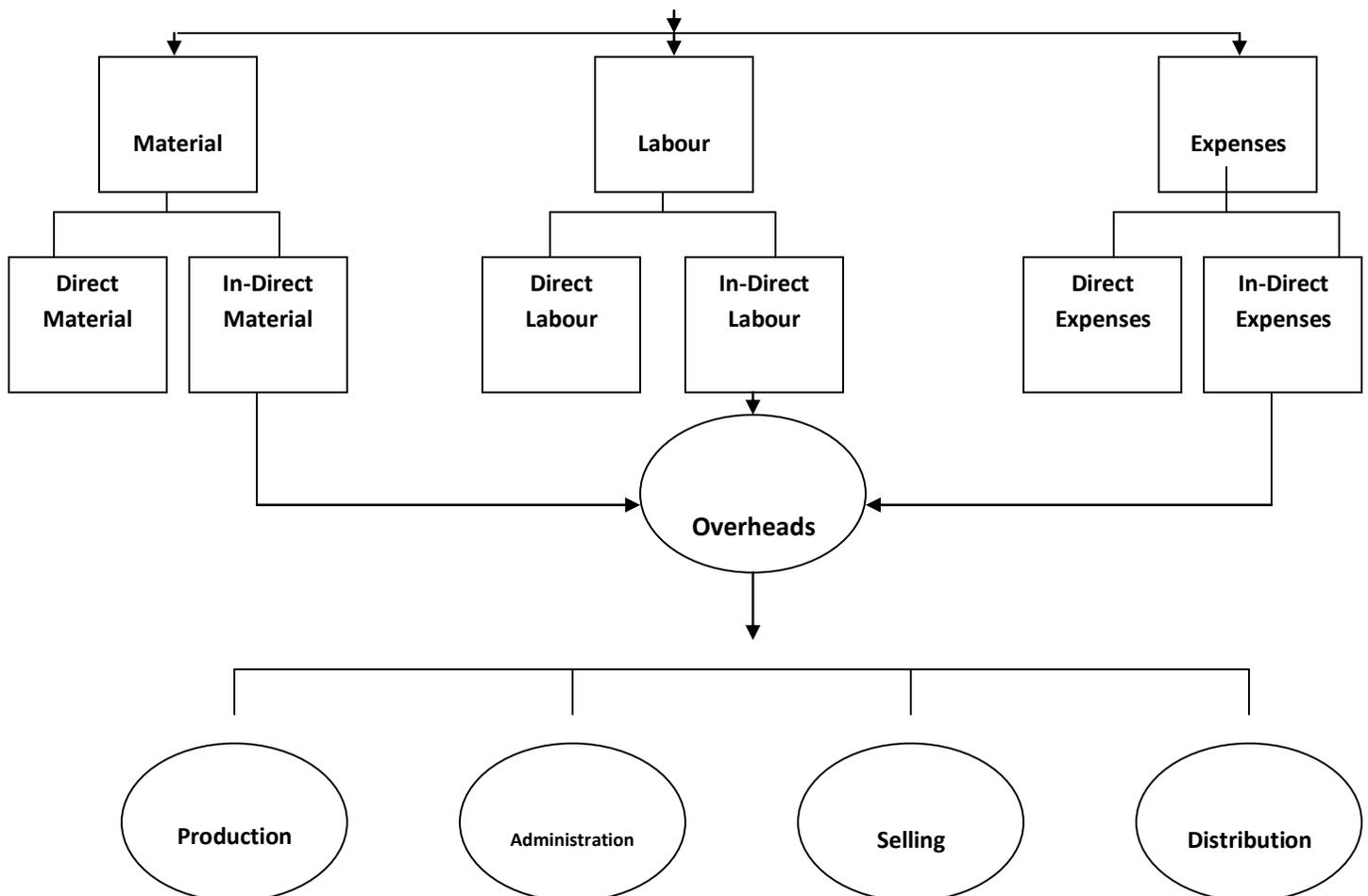
Question. 1.What are the elements of cost and what are various types of cost on the basis of variability and how cost accounting differ from management accounting.

Ans: Cost Accounting: The process of accounting for cost which begins with the recording of income and expenditure or the bases on which they are calculated and ends with the preparation of periodical statements and report for ascertaining and controlling costs”

“The application of accounting and costing principles, methods and to techniques in the ascertainment of cost and the analysis of saving and/or excess as compared with previous experience or with standard”.

“It is a process recording and presentation of income and expenditure for a period & to control the cost”.

Element of cost



Production Overheads: The indirect cost (Material labour expenses) which are incurred in relation to the factory called Factory overhead(Works overheads)

Administration overheads: The indirect cost (Material labour expenses) which are incurred in relation to the office called Administration overhead(Office overheads).

Selling Overheads: The indirect cost (Material labour expenses) which are incurred in relation to the selling is called selling overhead.

Distribution overheads: The indirect cost (Material labour expenses) which are incurred in relation to distribution is called distribution overhead.

Key Differences Between Cost Accounting and Management Accounting

1. The accounting related to the recording and analysing of cost data is cost accounting. The accounting related to the producing information which is used by the management of the company is management accounting.
2. Cost Accounting provides quantitative information only. On the contrary, Management Accounting provides both quantitative and qualitative information.
3. Cost Accounting is a part of Management Accounting as the information is used by the managers for making decisions.
4. The primary objective of the Cost Accounting is the ascertainment of cost of producing a product, but the main objective of the management accounting is to provide information to managers for setting goals and future activity.
5. There are specific rules and procedure for preparing cost accounting information while there is no specific rules and procedures in case of management accounting information.
6. The scope of Cost Accounting is limited to cost data however the Management Accounting has a wider area of operation like tax, budgeting, planning and forecasting, analysis, etc.
7. Cost accounting is related to ascertainment, allocation, distribution and accounting face of cost. On the flip side, management accounting is associated with impact and effect aspect of cost.
8. Cost accounting stresses on short-range planning, but management accounting focuses on long and short range planning, for which it uses high level techniques such as probability structure, sensitivity analysis etc.
9. While management accounting can't be installed in the absence of cost accounting, cost accounting has no such requirement, it can be installed without management accounting.

Question.2. What are the methods and techniques of cost Accounting.

Ans: methods of costing :

- 1. Single output or unit costing :** This method of costing is suitable to those industries who produces only one or very few grades product. For example : **Watch, fan ,Radio ,Chair , table** etc
- 2. Contract costing:** This method of costing is suitable to those industries which are engaged in the construction of **road, bridge, dam, port, air port** etc. In this costing every contract is treated as a unit ,
- 3. Process costing :** This method of costing is followed when cost of completing different stage is ascertained. In this case product passes through more than one process before it become finished. For example: **Sugar, textile, Petrol, paper, chemical industries** etc,
- 4. Batch costing:** This method of costing is suitable to those industries which produces product in batches . In this case batches is treated as a unit. For example: **Biscuits, Bricks, tire tube** etc,
- 5. Service costing/Operating costing :** This method of costing is followed by those concern which provides services .For Example: **Transport service ,Cinema service, hotel service** etc.
- 6. Job costing :** This method of costing is suitable in all those cases where work is undertaken on receiving a customer's order *for example: printing press, motor workshop, Ship building job, Interior decoration , Advertising ,Hardware etc.*
- 7. Multiple costing:** It involves the application of two or more methods of costing in respect of same product. It is used in industries where a number of components are separately produced and the assembled into a final product. For Example: **Cycle, motor cycle scooter, Car, T.V. AC. Refrigerator etc**

Techniques of costing

- 1. Marginal costing:** it is the practice of charging all variable costs to operations, processes or products and writing off all fixed costs against profits in the period in which they arise
- 2. Direct costing:** It is the practice of charging all direct costs to operations, processes or products and writing off -all indirect costs against profits in the period in which they arise.

3. **Absorption costing:** It is the practice of charging all variable manufacturing costs and fixed production overheads to operations, processes or products and writing off administration, selling and distribution overheads against profits in the period in which they arise.
4. **Uniform costing :** It is the practice of using the same costing principles and/ or practice by a number of firms in the same industry. It helps in -inter firm- comparison, fixation of prices, cost control and cost reduction and in seeking tax relief or protection from government

5. **Standard costing:** it Is a -system-which involves -

(a) -Fixation of standards for each element of cost.

(b) Comparison of actual costs with standard costs to ascertain the variances.

(c) Analysis of variances to ascertain the reasons for the variances. -

(d) Presenting information to the appropriate level of management to decide upon the corrective action to be taken.

6. **Budgetary control:** it is- a system which involves —

(a) Establishment of budgeted performance for each activity of the business for the budget period.

(b) -Comparison of actual performance with the budgeted performance to ascertain - variances

(c) Analysis of variances to ascertain the reasons for - the variance.

(d) Taking corrective action

7. **Historical costing:** It is a system under which actual costs are ascertained after they have been incurred

Question: 3. What do you mean by overheads what are various types of overheads what are its basis to distribute overheads and also explain allocation, apportionment and absorption of overheads.

Ans: . The indirect portion of the total cost constitutes the overhead cost which is the aggregate of indirect material cost, indirect wages and indirect expenses. CIMA defines indirect cost as “expenditure on labour, materials or services which cannot be economically identified with a specific saleable cost per unit.” Indirect costs are those costs which are incurred for the benefit of a number of cost centres or cost units. Indirect cost, therefore, cannot be conveniently identified with a particular cost centre or cost unit but it can be apportioned to or absorbed by cost centres or cost units. Broadly speaking, any expenditure

over and above prime cost is known as overhead. In general terms, overheads comprise all expenditure incurred for or in connection with the general organization of the whole or part of the undertaking i.e. the cost of operating supplies and services used by the undertaking including the maintenance of capital assets. The terms ‘burden’, ‘supplementary costs’, ‘on costs’, ‘indirect expenses’ are used interchangeably for overhead.

General basis of apportionment of some common items of production overheads

| Common items of production overheads | Basis of apportionment |
|---|---------------------------|
| 1. Factory Rent rates and taxes 2. Repairs & Maintenance of factory building 3. Insurance of factory building 4. Depreciation of factory building (if owned) | Floor Area Occupied |
| 5. Repair of plant and machineries 6. Insurance of plant and machinery 7. Deprecation of plant and Machinery | Capital Cost of Machinery |
| 8. Insurance of stock | Value of insured stock |
| 9. Supervision 10 Canteen , staff welfare expenses 11 Time keeping & personnel office exp. 12 Compensation of workers | No of worker |
| 13 Employee ‘ state insurance contribution 14 Provident fund contribution | Wages |
| 15 Store overheads / store keeping expenses | Value of direct Material |
| 16 Material handling charges | Weight of direct material |

17 Lighting & heating
occupied

No. of light points or floor area

18 Power / steam consumption
hours

horse power of machines or machine

Allocation

When items of overhead can be identified directly with specific departments, these are allocated to these departments and, thus, this process of identification of whole items of overhead to specific departments is termed as allocation. It should be noted that items of overhead cannot be identified with specific units of production, but it can be identified with specific department for the purpose of allocation. For example, the material issued to repair department cannot be linked with specific units of production, but this item of overhead can be allocated direct to maintenance service cost centre. An item of overhead cannot be allocated to a department, until the following two conditions are satisfied;

- (i) The concerned department should have caused the overhead item to be incurred.
- (ii) Exact amount of item of overhead should be known.

Apportionment

The items of overhead , which cannot be identified with specific departments, are prorated or distributed among the related departments and this proportion of distribution is technically referred to as apportionment. All items of overhead that cannot be allocated are apportioned among the production or service departments on some reasonable basis , which is decided after a lot of analysis and careful consideration of factors involved.

Steps for distribution of overheads: The various steps for the distribution of overheads are as follows-

Estimation and collection of manufacturing overheads The amount of factory overheads is required to be estimated. The estimation is usually done with reference to past data adjusted for known future changes. The overhead expense are usually collected though a system of standing orders.

Question: 4. Explain activity based costing, JIT theory, ABC analysis and differences between marginal and absorption costing.

Activity-based costing provides a more accurate view of product cost, but companies typically use it as a supplemental costing system. The allocation bases used in activity-based costing differ from those used in traditional costing. Activity-based costing determines every activity associated with producing an item and allocates a cost to the activity. The cost assigned to the activity is then assigned to products that require the activity for production. Under activity based costing overheads are divided on the basis of cost driver help. Cost driver is the basis on which overheads are apportioned.

Just in time purchase

Meaning: Just in time purchasing means purchase when required only or purchase immediately before use. CIMA, London defines JIT purchasing as “matching receipts of materials closely with usage so that raw materials inventory is reduced to near zero level.”

ABC Analysis

It is a system to control over inventory. Inventories are classified in three categories on the basis their importance , namely , their value and frequency of replenishment during a period.

- (i) ‘A’ Category of items consists of only a small percentage i.e., about 10% of the total items handled by the stores but require heavy investment about 70% of inventory value, because of their high prices or heavy requirement or both.
- (ii) ‘B’ Category of items are relatively less important; they may be 20% of the total items of material handled by stores. The percentage of investment required is about 20% of the total investment in inventories.
- (iii) ‘C’ Category of items do not require much investment; it may be about 10% of total inventory value but they are nearly 70% of the total items handled by store.

Absorption Costing

Absorption costing is the practice of charging all variable manufacturing costs(i.e. Direct Materials cost, Direct labour cost , Direct Expense and variable production overheads) and fixed production overheads to operations, processes or products. And writing off all administration, selling and distribution overheads against the profits in the period in which they arise.

Note: *Closing stock always valued at standard cost, So in absorption costing closing stock is valued at standard cost i.e. on the basis of manufacturing cost absorbed and then after under or over absorption (difference between actual and absorbed manufacturing cost) is adjusted in the cost.*

Basic Feature of absorption costing

- (i) All costs are classified on fictional basis as production cost, administration cost, selling cost distribution costs.
- (ii) All variable manufacturing costs and fixed production overheads are treated as product cost and hence are charged to operations, processes or products.
- (iii) All administration , selling and distributing overheads are treated as period costs and hence, are written off against the profits in the period in which they arise.

Distinction between Marginal costing and absorption costing

| | |
|--|--|
| <ol style="list-style-type: none">1. Only variable cost are considered for product costing and inventory valuation.2. Fixed cost are regarded as period cost . The Profitability of different precuts is judges by their P /V3. Cost data presented highlight the tot al contribution of each product.4. The difference in the magnitude of opening stock and closing stock does not affect the | <ol style="list-style-type: none">1. Both fixed and variable costs are considered for product costing and inventory valuation .2. Fixed costs are charged to the cost of production. Each product bears a reasonable share of fixed cost and thus t he profitability of a product is influenced by the apportionment of fixed costs.3. Cost data are presented in conventional pattern.. Net profit of each product is determined after subtracting fixed cost along with their variable costs.4. The difference in the magnitude of opening stock and closing stock affects the unit cost of production due to the impact of related fixed cost. |
|--|--|

Question: 5 What do you mean budget, explain fixed, flexible master and functional budget, and also zero base budgeting.

The Chartered Institute of Management Accountants of England and Wales has defined the term “budget” and “budgetary control” as follows:

Budget:

“A financial and quantitative statement prepared and approved prior to a defined period of time of the policy to be pursued during that period for the purpose of attaining a given objective. It may include income, expenditure and employment of capital”

Fixed Budget: According to chartered institute of management accountants of England, “ a fixed budget , is a budget designed to remain unchanged irrespective of the level of activity actually attained” . A fixed budget shows the expected result of a responsibility center for only activity level. Once the budget has been determined, it is not changed , even if the activity changes. Fixed budgeting is used by many service companies and for some administrative functions of

manufacturing companies, such as purchasing , engineering, and accounting. Fixed budget is used as an effective tool of cost control . In case , the level of activity attained is different from the level of activity for budgeting purposes, the fixed budget becomes ineffective,. Such a budget is quite suitable for fixed expense . It is also known as a static budget.

Flexible budget: Unlike static budgets , flexible budgets show the expected results of a responsibility center for several activity levels. You can think of a flexible budget as a series of static budgets for different levels of activity. Such budgets are especially useful in estimating and controlling factory costs and operating expenses. It is more realistic and practicable because it gives due consideration to cost behaviour at different levels of activity. While preparing a flexible budget the expenses are classified into three categories viz.

- (i) Fixed ,
- (ii) Variable , and
- (iii) Semi- variable

Semi variable expenses are further segregated into fixed and variable expense .Flexible budgeting may be resorted to under following:

Semi variable expenses are further segregated into fixed and variable expenses. Flexible budgeting may be resorted to under following situations:

- (i) In the case of new business venture due to its typical nature it may be difficult to forecast the demand of a product accurately.
- (ii) Where the businesses dependent upon the mercy of nature e.g., a person dealing in wool trade may have enough market if the temperature goes below the freezing point.
- (iii) In the case of labour intensive industry where the production of the concern is dependent upon the availability of labour.

Master Budget: It is a consolidated summary of the various functional budgets. It serves as the basis upon which budgeted P/L and forecasted balance sheet are built up.

Functional Budget : These type budget are individual functions budget for Example

- (i) Sales budget
- (ii) Production budget
- (iii) Plant utilisation budget
- (iv) Direct-material usage budget
- (v) Direct-material purchase budget
- (vi) Direct-labour (personnel) budget
- (vii) Factory overhead budget
- (viii) Production cost budget
- (ix) Ending-inventory budget
- (x) Cost-of-goods-sold budget
- (xi) Selling and distribution cost budget
- (xii) Administration expenses budget
- (xiii) Research and development cost budget
- (xiv) Capital expenditure budget
- (xv) Cash budget
- (xvi) Budget summaries/Master budget - Budgeted income statement and Budgeted balance sheet.

A system of budgeting where each department or division of a company must justify all expenditures and allocations rather than simply increases over the previous fiscal year. That is, the budget is made with every department starting at zero dollars to spend, and each department must demonstrate need for what it wants to receive.

Zero-based budgeting is advantageous because it is more detail-oriented than other forms of budgeting; among other things, it makes it easier to detect and eliminate over-inflated budgets. Zero base budgeting is more difficult and time consuming to put together and often has a bias towards departments that directly produce revenue instead of department like R& D.

Question.6. In respect of a factory the following figures have been obtained for the year 2006.

Cost of material Rs. 6,00,000 ; Direct wages Rs. 5,00,000 ; Factory overheads Rs.3,00,000
 Administrative overheads Rs. 3,36,000 ; Selling overheads Rs, 2,24,000 ; Distribution overheads Rs. 1,40,000 and Profit Rs. 4,20,000.

A work order has been executed in 2007 and the following expenses have been incurred
 Materials Rs. 8,000 and wages Rs. 5,000.

Assuming that in 2007 the rate of factory overheads has increased by 20%, distribution overheads have gone down by 10% and selling and administration overheads have each gone up

by 12.5 %, at what price should the product be sold so as to earn the same rate of profit on the selling price as in 2006.

Factory overhead is based on direct wages while all other overheads are based on factory cost.

Ans: **Statement of cost and profit**

| | |
|---------------------------|-----------|
| | Rs. |
| Materials | 6,00,000 |
| Direct Wages | 5,00,000 |
| <i>Prime Cost</i> | 11,00,000 |
| Factory Overheads | 3,00,000 |
| <i>Works Cost</i> | 14,00,000 |
| Administration Overheads | 3,36,000 |
| <i>Cost of Production</i> | 17,36,000 |
| Selling Overheads | 2,24,000 |
| Distribution Overheads | 1,40,000 |
| <i>Cost of Sales</i> | 21,00,000 |
| Profit | 4,20,000 |
| <i>Sales</i> | 25,20,000 |

$$(a) \text{ Percentage of factory overheads on direct wages} = \frac{\text{Rs. } 3,00,000}{\text{Rs. } 5,00,000} \times 100 = 60\%$$

$$(b) \text{ Percentage of administrative overheads on works cost} = \frac{\text{Rs. } 3,36,000}{\text{Rs. } 14,00,000} \times 100 = 24\%$$

$$(c) \text{ Percentage of selling overheads on works cost} = \frac{\text{Rs. } 2,24,000}{\text{Rs. } 14,00,000} \times 100 = 16\%$$

$$(d) \text{ Percentage of distribution overheads on works cost} = \frac{\text{Rs. } 1,40,000}{\text{Rs. } 14,00,000} \times 100 = 10\%$$

$$(e) \text{ Percentage of profit on cost of sales} = \frac{\text{Rs. } 4,20,000}{\text{Rs. } 21,00,000} \times 100 = 20\%$$

Estimate for work order

| | |
|--|--------|
| | Rs. |
| Materials | 8,000 |
| Wages | 5,000 |
| <i>Prime Cost</i> | 13,000 |
| Factory Overheads (60% of wages + 20% thereof) i.e. 72% of wages | 3,600 |
| <i>Works Cost</i> | 16,600 |

| | |
|---|--------|
| Administration Overheads (24% of works cost + $12\frac{1}{2}\%$ thereof) i.e. 27% of works cost | 4,482 |
| <i>Cost of Production</i> | 21,082 |
| Selling Overheads (16% of works cost + $12\frac{1}{2}\%$ thereof) i.e. 18% of works cost | 2,988 |
| Distribution Overheads (10% of works cost—10% thereof) i.e. 9% of works cost | 1,494 |
| <i>Cost of Sales</i> | 25,564 |
| Profit (20% on cost of sales) | 5,113 |
| <i>Selling Price</i> | 30,677 |

Question.7. The Ganges Pump Company uses about 75,000 valves per year and the usage is fairly constant at 6,250 valves per month.

The valves cost Rs. 1.50 per unit when bought in quantities and the carrying cost is estimated

to be 20% of average inventory investment on the annual basis. The cost to place an order and process the delivery is Rs. 18.

It takes 45 days to receive delivery from the date of the order and a safety stock of 3,250 valves is desired.

You are required to determine:

- (i) the Economic Order Quantity and the frequency of orders;
- (ii) the order point; and
- (iii) the Economic Order Quantity if the valves cost Rs. 4.50 each instead of Rs. 1.50 each.

Ans :

$$\begin{aligned}
 \text{(i) Economic Order Quantity} &= \sqrt{\frac{2CO}{I}} = \sqrt{\frac{2 \times 75,000 \times \text{Rs. } 18}{20\% \text{ of Rs. } 1.50}} \\
 &= \sqrt{\frac{2 \times 75,000 \times \text{Rs. } 18}{\text{Rs. } 0.30}} = 3,000 \text{ valves}
 \end{aligned}$$

$$\text{Frequency of Orders} = \frac{\text{Days in a year}}{\text{No. of orders per year}} = \frac{365 \text{ days}}{25} = 14.6 \text{ days}$$

$$\left(\text{No. of orders per year} = \frac{\text{Usage per year}}{\text{E.O.Q.}} = \frac{75,000 \text{ valves}}{3,000 \text{ valves}} = 25 \text{ orders} \right)$$

$$\begin{aligned}
 \text{(ii) Order Point} &= \text{Consumption during lead period} + \text{safety stock} \\
 &= 9,375 \text{ valves} + 3,250 \text{ valves} = 12,625 \text{ valves}
 \end{aligned}$$

(Consumption during lead period of 45 days @ 6,250 units per month = For $\frac{1}{2}$ months @ 6,250 valves per month = 9,375 valves)

(iii) Economic Order Quantity if the valves cost Rs. 4.50 each instead of Rs. 1.50 each

$$\text{E.O.Q.} = \sqrt{\frac{2CO}{I}} = \sqrt{\frac{2 \times 75,000 \times \text{Rs. } 18}{20\% \text{ of Rs. } 4.50}} = 1,732 \text{ valves.}$$

Question:8

| | | |
|---------------------------------------|---|--------------|
| (i) Ascertain profit, when sales | = | Rs. 2,00,000 |
| Fixed Cost | = | Rs. 40,000 |
| BEP | = | Rs. 1,60,000 |
| (ii) Ascertain sales, when fixed cost | = | Rs. 20,000 |
| Profit | = | Rs. 10,000 |
| BEP | = | Rs. 40,000 |

Ans:- (i) Rs. 10,000; (ii) Rs. 60,000.

Ans.

$$(i) \text{ P/V ratio} = \frac{\text{F.C.} \times 100}{\text{B.E.P.}} = \frac{\text{Rs. } 40,000 \times 100}{\text{Rs. } 1,60,000} = 25\%$$

$$\begin{aligned} \text{Contribution} &= \text{Sales} \times \text{P/V ratio} = \text{F.C.} + \text{Profit} \\ &= \text{Rs. } 2,00,000 \times 25\% = \text{Rs. } 50,000 = \text{Rs. } 40,000 + \text{Profit} \\ \text{or Rs. } 50,000 &= \text{Rs. } 40,000 + \text{Profit} \\ \text{or Profit} &= \text{Rs. } 10,000 \end{aligned}$$

$$(ii) \text{ Contribution} = \text{F.C.} + \text{Profit} = \text{Rs. } 20,000 + \text{Rs. } 10,000 = \text{Rs. } 30,000$$

$$\text{P/V ratio} = \frac{\text{Rs. } 20,000}{\text{Rs. } 40,000} \times 100 = 50\%$$

$$\text{Also, P/V ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100$$

$$\text{or Sales} = \frac{\text{C}}{\text{P/Vratio}} \times 100 = \frac{\text{Rs. } 30,000}{50\%} = \text{Rs. } 60,000$$

Question9: Nandi Chemicals Limited has two factories with similar plant and machinery for manufacture of soda ash. The Board of Directors of the company has expressed the desire to merge them and to run them as one integrated unit. Following data are available in respect of these two factories:

| Factory | X | Y |
|-----------------------|-----------|-----------|
| Capacity in operation | 60% | 100% |
| Turnover | 120 lakhs | 300 lakhs |
| Variable cost | 90 lakhs | 220 lakhs |
| Fixed costs | 25 lakhs | 40 lakhs |

Find out: (a) What should be the capacity of the merged factory to be operated for breakeven? (b) What is the profitability of working 80% of the integrated capacity? (c) What turnover will give an overall profit of Rs 60 lakhs?

(a) STATEMENT SHOWING THE COST AND PROFIT SITUATION OF FACTORIES X AND Y (INDIVIDUALLY AND INTEGRATED)

| (Rupee in lakhs) | Factory X | Factory X | Factory Y | Combined XY |
|------------------------|-----------|-----------|-----------|-------------|
| Capacity Levels | 60% | 100% | 100% | 100% |
| Turnover | 120 | 200 | 300 | 500 |
| Variable Cost | 90 | 150 | 220 | 370 |
| Contribution | 30 | 50 | 80 | 130 |
| Fixed Cost | 25 | 25 | 40 | 65 |
| P/V Ratio | 25% | 25% | 26.67% | 26% |
| Break-even Point | 100 | 100 | 150 | 250 |
| BEP as a % of Turnover | 80.3% | 50% | 50% | 50% |

(b) Profit at 80% utilisation of integrated capacity:

| | |
|------------------------------------|---------------|
| Turnover | Rs. 400 lakhs |
| Contribution = $130 \times 80/100$ | 104 lakhs |
| Fixed cost | 65 lakhs |
| Profit | 39 lakhs |
| Profit as % of turnover | 9.75 |

| | |
|--|--------------|
| (c) Total contribution required | 60 lakhs |
| Profit | 65 lakhs |
| Fixed cost | 125 lakhs |
| Turnover required $125 \times 100/26$ | 480.77 lakhs |

Question 10: A Company is engaged in manufacturing two products 'X' and 'Y'. Product X uses one unit of component 'P' and two units of component 'Q'. Product 'Y' uses two units of component 'P', one unit of component 'Q' and two units of component 'R'. Component 'R' which is assembled in the factory uses one unit of component 'Q'.

Components 'P' and 'Q' are purchased from the market. The company has prepared the following forecast of sales and inventory for the next year

| | Product 'X' | Product 'Y' |
|------------------------------|-------------|-------------|
| Sales (in units) | 80,000 | 1,50,000 |
| At the end of the years | 10,000 | 20,000 |
| At the beginning of the year | 30,000 | 50,000 |

The production of both the products and the assembling of the component 'R' will be spread out uniformly throughout the year. The company at present orders its inventory of 'P' and 'Q' in quantities equivalent to 3 months production. The company has compiled the following data related to two components.

| | P | Q |
|------------------------------------|-------|-------|
| Price per unit (Rs.) | 20 | 8 |
| Order placing cost per order (Rs.) | 1,500 | 1,500 |
| Carrying cost per annum | 20% | 20% |

Required:

- Prepare a Budget of production and requirements of components during next year.
- Suggest the optimal order quantity of components 'P' and 'Q'.

Ans:

| (a) | Production Budget for products X and Y | |
|----------------------------------|---|----------|
| | X units | Y units |
| Inventory at the end of the year | 10,000 | 20,000 |
| Sales forecast | 80,000 | 1,50,000 |
| Total requirements | 90,000 | 1,70,000 |
| Les: Beginning inventory | 30,000 | 50,000 |
| Production | 60,000 | 1,20,000 |

(b)

Budgeted requirements of components P, Q and R

| Components | P | Q | R |
|--|----------|----------|----------|
| For Product X : Production 60,000 units | | | |
| P: 60,000 × 1 per unit | 60,000 | | |
| Q: 60,000 × 2 per unit | | 1,20,000 | |
| For Product Y: Production 1,20,000 units | | | |
| P: 1,20,000 × 2 per unit | 2,40,000 | | |
| Q: 1,20,000 × 1 per unit | | 1,20,000 | |
| R: 1,20,000 × 2 per unit | | | 2,40,000 |
| For comp R: Production 2,40,000 comp | | | |
| Q: 2,40,000 × 1 per component R | | 2,40,000 | |
| Total requirements | 3,00,000 | 4,80,000 | 2,40,000 |

Economic order quantity For P

| | |
|---|--|
| EOQ for P = $\sqrt{\frac{2 \times 3,00,000 \times 1,500}{20\% \text{ of } 20}}$ | EOQ for Q = $\sqrt{\frac{2 \times 4,80,000 \times 1,500}{20\% \text{ of } 8}}$ |
|---|--|

Question11: The following information is available from the cost records of Vatika & Co. For the month of August 2009.

- Material purchased 24,000 kg Rs. 1,05,600
- Material consumed 22,800 kg
- Actual wages paid for 5,940 hours Rs. 29,700
- Unit produced 2160 units.
- Standard rates and prices are :
- Direct material rate is Rs. 4.00 per unit
- Direct labour rate is Rs. 4.00 per hour
- Standard input is 10 kg. for one unit.
- Standard requirement is 2.5 hours per unit.

Calculate all material and labour variances for the month of August, 2009.

Ans:

Material Variances:

- (i) Material Cost Variance
= (Standard Quantity × Standard Price) - (Actual Quantity × Actual Price)
= (2,160 × 4 × 10) - (22,800 × 4.40)
= Rs.86,400 - Rs.1,00,320 = 13,920 (Adverse)
- (ii) Material Price Variance
= Actual Quantity (Standard Price - Actual Price)
= 22,800 Kg (4 - 4.40) = 9,120 (Adverse)
- (iii) Material Usage Variance
= Standard Price (Standard Quantity - Actual Quantity)
= 4 (21,600 - 22,800) = 4,800 (Adverse)

Note: unit basis for direct material has been taken as kg. hence, direct material rate is Rs. 4 per kg.

Verification:

$$MCV = MPV + MUV$$

$$13,920 \text{ (Adverse)} = 9,120 \text{ (Adverse)} + 4,800 \text{ (Adverse)}$$

Labour Variances:

- (i) Labour Cost Variance
= (Standard Hour × Standard Rate) - (Actual Hour × Actual Rate)
= (2,160 × 2.50 × 4) - (29,700)
= 21,600 - 29,700 = 8,100 (Adverse)
- (ii) Labour Rate Variance
= Actual Hour (Standard Rate - Actual Rate)
= 5,940 (4 - 5) = 5,940 (Adverse)
- (iii) Labour Efficiency Variance
= Standard Rate (Standard Hour - Actual Hour)
= 4 (5,400 - 5,940) = 2,160 (Adverse)

Verification:-

$$LCV = LRV + LEV$$

$$8,100 \text{ (Adverse)} = 5,940 \text{ (Adverse)} + 2,160 \text{ (Adverse)}$$

$$\text{Standard Hour} = 2,160 \text{ Units} \times 2.50 \text{ Hours} = 5,400 \text{ Hrs.}$$

Question 12:

Following details relating to product X during the month of April, 2009 are available :

Standard cost per unit of X :

Materials : 50 kg @ Rs. 40/kg

Actual production : 100 units

Actual material cost : Rs. 42/kg

Material price variance : Rs. 9,800 (Adverse)

Material usage variance : Rs. 4,000 (Favourable)

Calculate the actual quantity of material used during the month April, 2009.

Ans:

Material price variance = AQ (Std. price per kg - Actual price per kg)

$$= (-) 9800 = AQ (40 - 42)$$

$$\therefore (-) 9800 = AQ (- 2)$$

$$\therefore AQ = \frac{9,800}{2} = 4,900$$

Actual quantity of material used during the month of April = 4,900 kg.

Question: 13 What do you mean by joint product and how the joint cost is distributed in joint products and also define by product.

Ans: Joint Product

Joint products represent “two or more products separated in the course of the same processing operation usually requiring further processing each product being in such proportion that no single product can be designated as a major product”. In other words two or more products of equal importance, produced simultaneously from the same process, are known as joint products. For example in the oil industry, gasoline, fuel oil, lubricants, paraffin, coal tar, asphalt and kerosene are all produced from crude petroleum. These are known as joint products.

Method of apportioning joint cost over joint products: Proper apportionment of joint cost over the Joint Products is of considerable importance, as this affects (a) Valuation of closing inventory; (b) Pricing of products; and (c) Profit or loss on the sale of different products.

The commonly used methods for apportioning total process costs upto the point of separation over the joint products are as follows

(i) **Physical unit method:**

(ii) **Average unit cost method: –**

$$\text{Average cost} = \text{Total joint costs} / \text{total no of unit of joint product}$$

(iii) **Survey method (Point Value method) :** Joint cost are apportioned on the basis of point value percentages assigned to the products according to their relative importance. The point value / percentage are based on the technical survey of all the factors affecting the production and distribution of joint product.

(iv) **Contribution margin method:-** In this case variable portion of total joint cost is apportioned on the basis of physical volume of products produced ratio and The fixed portion of total joint cost is apportioned on the basis of contribution margin ratio. Contribution margin is the difference between the total sales value and total variable cost.

(v) **Market value at separation point method:**

(vi) **Market value after further processing:**

(vii) **Net realizable value:**

$$\text{Realizable value} = \text{Selling price after further processing} - \text{Further processing cost}$$

By- products

These are defined as “products recovered from material discarded in a main process, or from the production of some major products, where the material value is to be considered at the time of severance from the main product.” Thus by products emerges as a result of processing operation of another product or they are produced from the scrap or waste of materials of a process. In short a by product is a secondary or subsidiary product which emanates as a result of manufacture of the main product. Examples of by-products are molasses in the manufacture of sugar, tar, ammonia and benzole obtained on carbonisation of coal and glycerine obtained in the manufacture of soap.

Question:14 RST Limited processes product Z through two distinct process — Process I and Process II. On completion, it is transferred to finished stock. From the following information for the year 2006-07, prepare Process I, Process II and Finished Stock a/c.

| <i>Particlars</i> | <i>Process I</i> | <i>Process II</i> |
|---|---------------------|---------------------|
| Raw materials used | 7,500 units | — |
| Raw materials cost per unit | Rs.60 | — |
| Transfer to next process/finished stock | 7,050 units | 6,525 units |
| Normal loss (on inputs) | 5% | 10% |
| Direct wages | Rs.1,35,750 | Rs.1,29,250 |
| Direct expenses | 60% of direct wages | 65% of direct wages |
| Manufacturing overheads | 20% of direct wages | 15% of direct wages |
| Realizable value of scrap per unit | Rs.12.50 | Rs.37.50 |

6,000 units of finished goods were sold at a profit of 15% on cost. Assume that there was no opening

or closing stock of work-in-progress.

[CA (PE-II) November

2007]

Solution

Process I Account

| <i>Particulars</i> | <i>Units</i> | <i>Rs.</i> | <i>Particulars</i> | <i>Units</i> | <i>Rs.</i> |
|--|--------------|------------|--|--------------|------------|
| To Raw Material @ Rs.60 per unit | 7,500 | 4,50,000 | By Normal Loss (@ Rs. 12.50) | 375 | 4,687.5 |
| To Direct Wages | | 1,35,750 | By Abnormal Loss @ Rs. 96.79 per unit | 75 | 7,259.6 |
| To Direct Expenses (60% of Direct wages) | | 81,450 | By Transfer to Process II @ Rs. 96.79 per unit | 7050 | 6,82,402.9 |
| To Mfg. Overheads (20% of Direct Wages) | | 27,150 | | | |
| | 7500 | 6,94,350 | | 7500 | 6,94,350 |

Process II Account

| <i>Particulars</i> | <i>Units</i> | <i>Rs.</i> | <i>Particulars</i> | <i>Units</i> | <i>Rs.</i> |
|--|--------------|------------|--|--------------|------------|
| To Transfer from Process I @ Rs.96.79 per unit | 7050 | 6,82,402.9 | By Normal Loss (@ Rs. 37.50) | 705 | 26,437.5 |
| To Direct Wages | | 1,29,250 | By Abnormal Loss | — | — |
| To Direct Expenses (65% of Direct wages) | | 84,012.5 | By Finished Goods @ Rs.140.05 per unit | 6,525 | 9,13,824.3 |
| To Manufacturing Oh. | | 19,387.5 | | | |
| To Abnormal Gain | | — | | | |

Working Note:

Process I

(i) Abnormal Loss (Units) = Input – Normal Loss – Actual Output
= 7500 – 375 – 7050 = 75 units.

(ii) Effective Lost per unit = $\frac{\text{Total Cost} - \text{Scrap Value of Normal Loss}}{\text{Input} - \text{Normal Loss}}$
= $\frac{6,94,350 - 4,687.5}{7500 - 375} = \frac{6,89,662.5}{7125} = \text{Rs.96.79 per unit}$

Process II

(i) Abnormal Gain (Units) = Input – Normal Loss – Actual Output
= 7050 – 705 – 6525 = (180) units.

(ii) Effective Cost per unit = $\frac{\text{Total Cost} - \text{Scrap Value of Normal Loss}}{\text{Input} - \text{Normal Loss}}$
= $\frac{\text{Rs.9,15,052.90} - 26,437.50}{7050 - 705}$
= $\frac{\text{Rs.8,88,615.40}}{6,345} = \text{Rs.140.05 per unit}$

Finished Stock Account

| Particulars | Units | Rs. | Particulars | Units | Rs. |
|--|-------|--------------|---------------------------------------|-------|--------------|
| To Process I A/c | 6525 | 9,13,824.35 | By Sales @ Rs.161.06 per unit | 6000 | 9,66,360 |
| To Costing P/L A/c (Balancing Figure) | | 1,26,061.90 | By Closing Stock @ Rs.140.05 per unit | 525 | 73,526.25 |
| | 6525 | 10,39,886.25 | | 6525 | 10,39,886.25 |