## Paper – 8: Cost & Management Accounting

**Time Allowed: 3 Hours** **Full Marks: 100**

**Question No 1 is Compulsory. Answers any five Questions from the rest.**
**Working Notes should form part of the answer.**

**Question.1**

**(a) Match the statement in Column I with the most appropriate statement in Column II :** **[1×5 =5]**

| Column I | Column II |
|---|---|
| (i) Flexible budget | (A) Item of reconciliation |
| (ii) Differential cost analysis | (B) Inventory management |
| (iii) Debenture interest | (C) Decision making |
| (iv) JIT system | (D) Considers cost by behaviour |
| (v) Uniform costing | (E) Technique to assist inter-firm comparison |

**(b) Fill in the blanks:** **[1×5 =5]**

(i) The total of indirect expenses is known as ……..
(ii) Ordering cost and carrying cost are …… in nature.
(iii) The purpose of cost control accounts is to control the ……
(iv) The scarce factor of production is known as …….
(v) LIFO method of pricing issues is useful during periods of …….

**(c) State whether the following statements are TRUE or FALSE:** **[1×5 =5]**

(i) Incentive systems benefit only workers.
(ii) Job costing is ideal where the products are dissimilar and non-repetitive in nature.
(iii) Service departments usually do not render services to each other.
(iv) Idle time variance is always adverse.
(v) Fixed cost vary with volume rather than time.

**(d) In the following cases, You are required to indicate the correct answer and give workings:** **[2x5 =10]**

**(i) The following information relates to budgeted operations of Division A of a manufacturing Company.**

| Particulars | Amount in ₹ |
|---|---|
| Sales-50,000 units @ ₹ 8 | 4,00,000 |
| Less: Variable costs @ ₹ 6 per unit | 3,00,000 |
| Contribution margin | 1,00,000 |
| Less: Fixed Costs | 75,000 |
| Divisional Profits | 25,000 |

**The amount of divisional investment is ₹1,50,000 and the minimum desired rate of return on the investment is the cost of capital of 10%.**
**Calculate**
**I. Divisional expected ROI and**
**II. Divisional expected RI**
**(i)**
**A. 17.6% and ₹ 10,000**

**B. 16.7% and ₹ 10,000**
**C. 16.7% and ₹ 20,000**
**D. None of the above**

**(ii) In a factory of XYZ LTD., where Standard Costing is followed, the budgeted fixed overheads for a budgeted production of 4,800 units is ₹24,000. For a certain period actual (FOH) expenditure was ₹22,000 resulting in a fixed overhead volume variance of ₹ 3,000 (Adv.). What is the actual production for the period.**

**A. 4,800 units**
**B. 4,200 units**
**C. 4,500 units**
**D. None of the above**

**(iii) SAMPARK LTD. operates a throughput accounting system. The details of product B-1 per unit are as under:**

| | |
|---|---|
| **Selling Price** | **₹30** |
| **Material Cost** | **₹12** |
| **Conversion Cost** | **₹15** |

**Time on bottleneck resources 6 minutes**
**Calculate the Return per hour for Product B-1**
**A. ₹ 160**
**B. ₹ 170**
**C. ₹ 180**
**D. ₹ 190**

**(iv) A television Company manufactures several components in batches.**
**The following data relate to one component:**

| | |
|---|---|
| **Annual demand** | **32,000 units** |
| **Set up cost/batch** | **₹120** |
| **Annual rate of interest** | **12%** |
| **Cost of production per unit** | **₹16** |

**Calculate the Economic Batch Quantity (EBQ).**
**A. 3,000 units**
**B. 2,500 units**
**C. 2,000 units**
**D. None of the these**

**(v) A company is currently operating at 80% capacity level. The production under normal capacity level is 1,50,000 units. The variable cost per unit is Rs. 14 and the total fixed costs are Rs. 8,00,000. If the company wants to earn a profit of Rs. 4,00,000, then the price of the product per unit should be……**
**A. ₹ 37.50**
**B. ₹ 24.00**
**C. ₹ 38.25**
**D. None of the above**

**Answer:**

**(a)**

| Column I | Column II |
|---|---|
| **(i)** Flexible budget | **(D)** Considers cost by behaviour |
| **(ii)** Differential cost analysis | **(C)** Decision making |
| **(iii)** Debenture interest | **(A)** Item of reconciliation |

| | |
|---|---|
| **(iv)** JIT system | **(B)** Inventory management |
| **(v)** Uniform costing | **(E)** Technique to assist inter-firm comparison |

**(b)**

(i) Overheads.
(ii) Variable.
(iii) Cost of production.
(iv) Key Factor.
(v) Inflation.

**(c)**

**(i)** False – Through Incentive system productivity can be improved by motivating workers. So it is beneficial to workers as well as employers.

**(ii)** True –Under Job costing method, cost of an individual job or work order is ascertained separately. Hence, it is ideal where the products are dissimilar and non-repetitive in nature.

**(iii)** False – Service departments can render services to each other, e.g. boiler house staff can use canteen facility.

**(iv)** True – This variance indicates the loss caused due to abnormal idle time. So, it will be always adverse.

**(v)** False – Fixed is fixed for a period. So , it varies with time rather than volume.

**(d)**

**(i)** 'B' - **16.7% and ₹10,000**
ROI= ₹25,000/1,50,000x100=16.7%
RI=Divisional profit- Minimum desired rate of return= 25,000-10% of 1,50,000= ₹10,000

**(ii)** 'B'- **4,200 units**
Fixed Overhead volume variance = ₹3,000 (Adv):
Budgeted Fixed overhead – Actual Production × Std. rate
= 24,000 –Actual Production × (24,000 ÷ 4,800)
Hence, 3,000 (A) = 24,000 – Actual Production × 5
Actual Production for the period: (24,000 – 3,000) ÷ 5 = 4,200 units.

**(iii)** 'C' – ₹ **180**

$$\text{Return per hour for Product B-1} = \frac{\text{Selling Price - Material Cost}}{\text{Time of bottleneck resuorce}}$$

$$= \frac{30-12}{6\,\text{minutes}} \times 60\,\text{minutes}$$

$$= \frac{18}{6} \times 60 = ₹180$$

**(iv)** 'C' - **2,000 units**

$$\text{E.B.Q} = \sqrt{\frac{2AS}{C}}$$

Where, A= Annual demand,
S=Set up cost per batch,
C=carrying cost per unit per year,

E.B.Q= $\sqrt{\frac{2\times 32,000\times 120}{16\times 0.12}}$

=2,000 units

**(v)** 'B' - **₹ 24.00.**

| | | |
|---|---|---|
| Total fixed cost | - | ₹ 8,00,000 |
| Expected profit | - | ₹ 4,00,000 |
| Variable cost at 80% level (80% x 1,50,000 units x ₹ 14) | - | ₹ 16,80,000 |
| Total price | - | ₹ 28,80,000 |

Per unit price at 80% level = (₹ 28,80,000 / 1,20,000 units) = ₹ 24.00

**Question.2**

**(a) The cost structure of an article the selling price of which is ₹45,000 is as follows:**

| | |
|---|---|
| **Direct Materials** | **50%** |
| **Direct Labour** | **20%** |
| **Overheads** | **30%** |

**An increase of 15% in the case of materials and of 25% in the cost of labour is anticipated.**

**These increased costs in relation to the present selling price would cause a 25% decrease in the amount of profit per article.**

**You are required to prepare:**

**(i) A statement of profit per article at present, and**

**(ii) The revised selling price to produce the same percentage of profit to sales as before.**

**(b) Distinguish between :**

**(i) 'Cost centre' and 'cost unit'.**

**(ii) Bill of material and material requisition note.**

**[9+(3+3) = 15]**

**Answer:**

**(a)**

**Workings:**

Let 'x' be the total cost and 'y' be the profit for an article whose selling price is ₹45,000
Hence x + y = ₹45,000……(A)

**Statement Showing Present and anticipated cost per article**

| Item ₹ | Present Cost ₹ | Increase ₹ | | Anticipated cost ₹ |
|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) = (2) + (4) |

| | | | | |
|---|---|---|---|---|
| Direct Material Cost | 0.5x | 15 | 0.075x | 0.575x |
| Direct Labour | 0.2x | 25 | 0.050x | 0.250x |
| Overheads | 0.3x | — | — | 0.300x |
| **Total** | x | | 0.125x | 1.125x |

The increase in the cost of direct material and direct labour has reduced the profit by 25 per cent (as selling price remained unchanged). The increase is cost and reduction in profit can be represented by the following relation:

1.125x + 0.75y = ₹45,000……..... (B)

On solving relations (A) and (B) as obtained under working notes 1 and 3 above we get:

x = ₹30,000
y = ₹15,000

**(i)**

**Present Statement of Profit per Article**

| | ₹ | ₹ |
|---|---|---|
| Direct Material Cost | 0.5x | 15,000 |
| Direct Labour Cost | 0.2x | 6,000 |
| Overheads | 0.3x | 9,000 |
| Total Cost | | 30,000 |
| Profit | | 15,000 |
| Selling Price | | 45,000 |

**Note :**

- Profit as a percentage of Cost Price = 50%
  (₹15,000/₹30,000) × 100

- Profit as a percentage of Selling Price = $33^1/_3$%
  (₹15,000/₹45,000) × 100

**(ii)**

**Statement of Revised Selling Price**

| | ₹ | ₹ |
|---|---|---|
| Direct Material Cost | 0.575x | 17,250 |
| Direct Labour Cost | 0.250x | 7,500 |
| Overheads | 0.300x | 9,000 |
| Total Anticipated Cost | | 33,750 |
| Profit ($33^1/_3$% of selling price) | | 16,875 |
| Selling Price<br>(₹33,750 × 100) / 66.6 | | 50,625 |

**(b)**

**(i)** Difference between 'Cost centre' and 'cost unit'

| Cost Centre | Cost Unit |
|---|---|
| The term Cost Centre is defined as a location, person or an item of equipment or a group of these for which costs may be ascertained and used for the purposes of Cost Control. Cost Centres can be<br>personal Cost Centres, impersonal Cost Centres, operation cost and process Cost Centres.<br><br>Thus each sub-unit of an organisation is known as a Cost Centre, if cost can be ascertained for it.In order to recover the cost incurred by a Cost Centre, it is necessary to express it as the cost of output. | The term Cost Unit is defined as a unit of quantity of product, service or time (or a combination of these) in relation to which costs may be ascertained or expressed. It can be for a job, batch, or product group.<br><br>The unit of output in relation to which cost incurred by a Cost Centre is expressed is called a Cost Unit. |
| Each sub-unit of an organisation is known as a Cost Centre, if cost can be ascertained for it. In order to recover the cost incurred by a Cost Centre, it is necessary to express it as the cost of output. | The unit of output in relation to which cost incurred by a Cost Centre is expressed is called a Cost Unit. |

**(ii)** Difference between 'Bill of material' and 'Material requisition note'

| Bill of material | Material requisition note |
|---|---|
| It is a comprehensive list of materials with exact description and specifications, required for a job or other production units. This also provides information about required quantities so that if there is any deviation from the standards, it can easily be detected. It is prepared by the Engineering or Planning Department in a standard form. | It is a formal written demand or request, usually from the production department to store for the supply of specified materials, stores etc. It authorises the storekeeper to issue the requisitioned materials and record the same on bin card. |
| The purpose of bill of material is to act as a single authorisation for the issue of all materials and stores items mentioned in it. It provides an advance intimation to store department about the requirements of materials. It reduces paper work. It serves as a work order to the production department and a document for computing the cost of material for a particular job or work order to the cost department. | The purpose of material requisition note is to draw material from the store by concerned departments. |

**Question. 3**

**(a) The following data are available in respect of material X for the year ended 31st March 2012.**

| | ₹ |
|---|---|
| **Opening stock** | **90,000** |
| **Purchase during the year** | **2,70,000** |
| **Closing stock** | **1,10,000** |

**Calculate —**
**(i) Inventory turnover ratio; and**
**(ii) the number of days for which the average inventory is held.**

**(b) At what price per unit would Part No. G 112 be entered in the Stores Ledger, if the following invoice was received from a supplier :**

| **Invoice** | ₹ |
|---|---|
| **200 units Part No. G112 @ ₹5** | **1,000.00** |
| **Less: 20% discount** | **200.00** |
| | **800.00** |
| **Add: Excise Duty @ 10%** | **80.00** |
| | **880.00** |
| **Add Packing charges (5 non-returnable boxes)** | **50.00** |
| | **930.00** |

**Notes:**
**(i) A 2% discount will be given for payment in 30 days.**
**(ii) Documents substantiating payment of excise duty is enclosed for claiming MODVAT credit.**

**(c) From the details given below, calculate**
**(i) Re-ordering level**
**(ii) Maximum level**
**(iii) Minimum level**
**(iv) Danger level**

**Re-ordering quantity is to be calculated on the basis of following information:**

**Cost of placing a purchase order is ₹20**
**Number of units to be purchased during the year is 5,000.**
**Purchase price per unit inclusive of transportation cost is ₹50.**
**Annual cost of storage per unit is ₹5.**
**Details of lead time:**
- **Average 10 days,**
- **Maximum 15 days,**
- **Minimum 6 days.**
- **For emergency purchases 4 days.**

**Rate of consumption:**
- **Average: 15 units per day,**
- **Maximum : 20 units per day**

**[6+3+6 =15]**

**Answer:**

**(a)**

**(i)** Inventory turnover ratio $= \frac{\text{Cost of stock of raw material consumed}}{\text{Average stock of raw material}}$

(Refer to working note)

$= \frac{₹2,50,000}{₹1,00,000} = 2.5$

**(ii)** Average number of days for which the average inventory is held

$$= \frac{365 \text{ days}}{\text{Inventory Turnover Ratio}} = 146 \text{ days}$$

**Working note:**

| | ₹ |
|---|---|
| Opening stock of raw material on 1.4.2011 | 90,000 |
| Add: Material purchases during the year | 2,70,000 |
| Less: Closing stock of raw material | 1,00,000 |
| Cost of stock of raw material consumed | 2,50,000 |

Average stock of raw material

= $^1/_2$ [Opening stock of raw material + Closing stock of raw material]

= $^1/_2$ [₹90,000 + ₹1,10,000]

= ₹1,00,000

**(b)**

| | ₹ |
|---|---|
| 200 units net cost after trade discount | 800 |
| Add: Packing charges | 50 |
| Total cost for 200 units | 850 |

Cost per unit = $\frac{₹\,850}{200}$ = ₹4.25

**(c)** .

Basic data:

| | |
|---|---|
| O (Ordering Cost per order) | = ₹ 20 |
| A (Number of units to be purchased annually) | = 5,000 units |
| P (Purchase price per unit inclusive of transportation cost) | = ₹ 50 |
| C (Annual cost of storage per unit) | = ₹ 5 |

Working Notes:

1. EOQ $= \sqrt{\frac{2AO}{C}} = \sqrt{\frac{2 \times 5{,}000 \text{ units} \times ₹\,20}{₹\,5}} = 200$ units

2. Average rate of consumption = $\frac{\text{Minimum rate of consumption (x)} + \text{Maximum rate of Consumption}}{2}$

15 units per day $= \frac{x + 20 \text{ units per day}}{2}$

= 10 units per day

**(i)** Re-ordering level = Maximum usage per period × Maximum re-order period

(ROL) = 20 units per day × 15 days
= 300 units

**(ii)** Maximum level = ROL + ROQ – [Minimum rate of consumption × Minimum reorder period]

= 300 units + 200 units – [10 units per day × Average reorder period]

= 440 units

**(iii)** Minimum level = ROL – [Average rate of consumption × Average reorder period]

= 300 units – (15 units per day × 10 days)
= 150 units

**(iv)** Danger level = Average consumption × Lead time for emergency purchases
= 15 units per day × 4 days
= 60 units

**Question. 4**

**(a) The monthly budgets for manufacturing overhead of a concern for two levels of activity were as follows :**

| **Capacity** | **60%** | **100%** |
|---|---|---|
| **Budgeted production (units)** | **600** | **1,000** |
| **Wages** | **₹ 1,200** | **₹ 2,000** |
| **Consumable stores** | **900** | **1,500** |
| **Maintenance** | **1,100** | **1,500** |
| **Power and fuel** | **1,600** | **2,000** |
| **Depreciation** | **4,000** | **4,000** |
| **Insurance** | **1,000** | **1,000** |
| | **9,800** | **12,000** |

**You are required to :**

**(i) Indicate which of the items are fixed, variable and semi variable**

**(ii) Prepare a budget for 80% capacity; and**

**(iii) Find the total cost, both fixed and variable, per unit of output at 60%, 80% and 100% capacity.**

**b) What are the steps of Zero Based Budgeting ?** **[9+6 = 15]**

**Answer:**

**a)**

(i) Fixed :

Depreciation - Since it remains constant at both the given levels.
Insurance - Same as above.

Variable :

Wages - Because it is ₹ 2 per unit at both the given levels.
Consumable stores - Because it is ₹ 1.50 per unit at both the given levels.

Semi-variable :

| | | |
|---|---|---|
| Maintenance | - | Since it is neither fixed nor the quantum of increase is proportionate to the increase in volume. |
| Power and fuel | - | Same as above. |

(ii) First of all, find out the variable portion of semi-variable overhead.

Working notes :
Maintenance :
Variable portion = Change in overhead = ₹ 400 ÷ 400 = Re. 1 per unit.
Fixed portion = ₹ 1,100 – (600 units x Re. 1) = ₹ 500
At 80% capacity level = (800 units x Re. 1) + ₹ 500 = ₹ 1,300

Power and fuel:
Variable portion = ₹ 400 ÷ 400 = Re. 1 per unit.
Fixed portion = ₹ 1,600 – (600 units x Re. 1) = ₹ 1,000
At 80% capacity level = (800 units x Re. 1) + ₹ 1,000 = ₹ 1,800

**Budget for 80% capacity level**

| | |
|---|---|
| Budgeted production (80% capacity) | 800 units |
| Wages @ ₹ 2 per unit | 1,600 |
| Consumables stores @ ₹ 1.5 per unit | 1,200 |
| Maintenance – as per above working | 1,300 |
| Power and fuel - do - | 1,800 |
| Depreciation | 4,000 |
| Insurance | 1,000 |
| Total | 10,900 |

To sum up, the variable cost per unit works out to ₹ 5.50. It consists of wages – ₹ 2, consumable stores – ₹ 1.50, maintenance – ₹ 1 and power and fuel – ₹ 1. The total fixed cost comes to ₹ 6,500 i.e. maintenance ₹ 500 + power and fuel ₹ 1,000 + depreciation ₹ 4,000 + insurance ₹ 1,000.

(iii) Total cost per unit

| | Capacity | | |
|---|---|---|---|
| | 60% | 80% | 100% |
| Production (units) | 600 | 800 | 1,000 |
| | | | ₹ Per unit |
| Variable cost | 5.50 | 5.50 | 5.50 |
| Fixed cost (₹ 6,500 ÷ production) | 10.83 | 8.13 | 6.50 |
| Total | 16.33 | 13.63 | 12.00 |

It should be noted that total cost (both fixed and variable) per unit is required and nor total cost at different capacity levels.

**b) Steps of Zero Based Budgeting :**

- Corporate objectives should be established and laid down in detail.
- Decision units are identified by dividing the organization according to functions or departments.
- The activity of each function or department is described, analysed and documented.
- The targets and objectives of each activity are clearly determined ignoring existing budget.
- The performance assessment and measurement criteria for each activity are clearly defined.
- Each separate activity of the organization is described in a decision package.
- In performance of an activity, the alternative methods and costs are evolved.
- Each activity or decision package is evaluated and ranked by cost benefit analysis.
- The benefits achieved at different levels of fundings are analysed.
- The consequences of not funding the activity are to be estimated.
- Resources in the budget are then allocated according to the resources available and the evaluation and ranking of the competing package.
- Available resources are directed towards alternatives in order of priority to ensure optimum results.

**Question. 5**

**(a) The following standards have been set to manufacture a product :**

| **Direct material** | ₹ |
|---|---|
| **2 units of A @ ₹ 4 per unit** | **8.00** |
| **3 units of B @ ₹ 3 per unit** | **9.00** |
| **15 units of C @ Re. 1 per unit** | **15.00** |
| | **32.00** |
| **Direct labour 3 hrs. @ ₹ 8 per hour** | **24.00** |
| **Total standard prime cost** | **56.00** |

**The company manufactured and sold 6,000 units of the product during the year. Direct material costs were as follows :**
**12,500 units of A at ₹ 4.40 per unit**
**18,000 units of B at ₹ 2.80 per unit**
**88,500 units of C at ₹ 1.20 per unit**
**The company worked 17,500 direct labour hours during the year. For 2,500 of these hours the company paid at ₹ 12 per hour while for the remaining the wages were paid at standard rate. Calculate materials price variances and usage variances and labour rate and efficiency variances.**

**(b) What are the objectives of Standard Costing Technique ?** **[9+6 = 15]**

**Answer.**

**(a) For material cost variances**

Actual cost of material used

| | | | |
|---|---|---|---|
| A | 12,500 units x ₹ 4.40 | = | ₹ 55,000 |
| B | 18,000 units x ₹ 2.80 | = | ₹ 50,400 |
| C | 88,000 units x ₹ 1.20 | = | ₹ 1,06,200 |
| | | | ₹ 2,11,600 |

Standard cost of material used

| | | | |
|---|---|---|---|
| A | 12,500 units x Rs 4.00 | = | ₹ 50,000 |
| B | 18,000 units x ₹ 3.00 | = | ₹ 54,000 |
| C | 88,500 units x ₹ 1.00 | = | ₹ 88,500 |
| | | | ₹ 1,92,500 |

Standard material cost of production 6,000 units x ₹ 32 = ₹ 1,92,000

Variances
Material price variance
= Actual cost of material used – Standard cost of material used
= ₹ 2,11,600 – ₹ 1,92,500
= ₹ 19,100 (A)

Material usage variance
= Standard cost of material – Standard material cost of production
= ₹ 1,92,500 – ₹ 1,92,000
= ₹ 500 (A)

For labour cost variance
Actual wages paid to workers

| | | |
|---|---|---|
| 2,500 hrs. x ₹ 12 | = | ₹ 30,000 |
| 15,000 hrs. x ₹ 8 | = | ₹ 1,20,000 |
| | | ₹ 1,50,000 |

Payment involved, if workers had been paid at standard rate
= 17,500 hrs. x ₹ 8 = ₹ 1,40,000
Standard labour cost of output achieved = 6,000 units x ₹ 24 = ₹ 1,44,000

Variances :
Labour rate variance = ₹ 1,50,000 – ₹ 1,40,000 = ₹ 10,000 (A)
Labour efficiency variance = ₹ 1,40,000 – ₹ 1,44,000 = ₹ 4,000 (F)

**(b) Objectives of Standard costing technique:**

- To provide a formal basis for assessing performance and efficiency
- To control costs by establishing standards and analysis of variances
- To enable the principle of 'Management by exception' to be practiced at the detailed, operational level
- To assist in setting budgets
- The standard costs are readily available substitutes for actual average unit costs and can be used for stock and work-in-progress valuations, profit planning and decision making and as a basis of pricing where 'cost-plus' systems are used
- To assist in assigning responsibility for non-standard performance in order to correct deficiencies or to capitalize on benefits
- To motivate staff and management
- To provide a basis for estimating
- To provide guidance on possible ways of improving performance

**Question. 6**

**(a) A factory has three production departments: The policy of the factory is to recover the production overheads of the entire factory by adopting a single blanket rate based on the percentage of total factory overheads to total factory wages. The relevant data for a month are given below:**

| Department | Direct Materials ₹ | Direct Wages ₹ | Factory Overheads ₹ | Director Labour Hour | Machine Hours |
|---|---|---|---|---|---|
| **Budget** | | | | | |
| **Machining** | **6,50,000** | **80,000** | **3,60,000** | **20,000** | **80,000** |
| **Assembly** | **1,70,000** | **3,50,000** | **1,40,000** | **1,00,000** | **10,000** |
| **Packing** | **1,00,000** | **70,000** | **1,25,000** | **50,000** | **–** |
| **Actual** | | | | | |
| **Machining** | **7,80,000** | **96, 000** | **3,90,000** | **24,000** | **96,000** |
| **Assembly** | **1,36,000** | **2,70,000** | **84,000** | **90,000** | **11,000** |
| **Packing** | **1,20,000** | **90,000** | **1,35,000** | **60,000** | |

**The details of one of the representative jobs produced during the month are as under:**
**Job No. 100**

| Department | Direct Materials ₹ | Direct Wages ₹ | Director Labour Hour | Machine Hours |
|---|---|---|---|---|
| **Machining** | **1,200** | **240** | **60** | **180** |
| **Assembly** | **600** | **360** | **120** | **30** |
| **Packing** | **300** | **60** | **40** | **–** |

**The factory adds 30% on the factory cost to cover administration and selling overheads and profit.**

**Required:**

**(i) Calculate the overhead absorption rate as per the current policy of the company and determine the selling price of the Job No. 100.**

**(ii) Suggest any suitable alternative method(s) of absorption of the factory overheads and calculate the overhead recovery rates based on the method(s) so recommended by you.**

**(iii) Determine the selling price of Job 100 based on the overhead application rates calculated in (ii) above.**

**(iv) Calculate the department wise and total under or over recovery of overheads based on the company's current policy and the method(s) recommended by you.**

**(b) What is Inter Firm Comparison?**

**[(2+4+2+5) + 2 = 15]**

**Answer**

**(a)**

**(i) Computation of overhead absorption rate (as per the current policy of the company)**

| Department | Budgeted Factory Overheads | Budgeted Direct Wages |
|---|---|---|

| | ₹ | ₹ |
|---|---|---|
| Machinery | 3,60,000 | 80,000 |
| Assembly | 1,40,000 | 3,50,000 |
| Packing | 1,25,000 | 70,000 |
| Total | 6,25,000 | 5,00,000 |

$$\text{Overhead absorption rate} = \frac{\text{Budgeted factory overheads}}{\text{Budgeted direct wages}} \times 100$$

$$= \frac{\text{Rs.}6,25,000}{\text{Rs.}5,00,000} \times 100$$

= 125% of Direct wages

**Selling price of the Job No. 100**

| | ₹ |
|---|---|
| Direct Materials (₹ 1,200 + ₹ 600 + ₹ 300 | 2,100.00 |
| Direct Wages (₹ 240 + ₹ 360 + ₹ 60) | 660.00 |
| Overheads (125% × ₹ 660) | 825.00 |
| Total factory cost | 3,585.00 |
| Add: Mark-up | 1,075.50 |
| Selling price | 4,660.50 |

**(ii) Methods available for absorbing factory overheads and their overhead recovery rates in different departments.**

1. Machining Department

In the Machining department, the use of machine time is the predominant factor of production. Hence machine hour rate should be used to recover overheads in this department. The overhead recovery rate based on machine hours has been calculated as under:

$$\text{Machine hour rate} = \frac{\text{Budgeted factory overheads}}{\text{Budgeted machine hours}}$$

$$= \frac{\text{Rs.}3,60,000}{80,000 \text{ hours}}$$

= ₹ 4.50 per hour

2. Assembly Department

In this department direct labour hours is the main factor of production. Hence direct labour hour rate method should be used to recover overheads in his department. The overheads recovery rate in this case is:

$$\text{Direct labour hour rate} = \frac{\text{Budgeted factory overheads}}{\text{Budgeted direct labour hours}}$$

$$= \frac{\text{Rs.}1,40,000}{1,00,000 \text{ hours}}$$

= ₹ 1.40 per hour

3. Packing Department

Labour is the most important factor of production in this department. Hence direct labour hour rate method should be used to recover overheads in this department.
The overhead recovery rate is in this case comes to:

$$\text{Direct labour hour rate} = \frac{\text{Budgeted factory overhead}}{\text{Direct labour hours}}$$

$$= \frac{\text{Rs. 1,25,000}}{\text{50,000 hours}}$$

= ₹ 2.50 per hour

**(iii) Selling price of Job 100**
**[based on the overhead application rates calculated in (ii) above)**

| | ₹ |
|---|---|
| Direct materials | 2,100.00 |
| Direct wages | 660.00 |
| Overheads (Refer to Working Note) | 1,078.00 |
| Factory cost | 3,838.00 |
| Add: Mark up (30% of ₹ 3,838) | 1,151.40 |
| Selling Price | 4,989.40 |

**Working Note**
**Overhead Summary Statement**

| Dept. | Basis | Hours | Rate ₹ | Overheads ₹ |
|---|---|---|---|---|
| Machining | Machine hour | 180 | 4.50 | 810 |
| Assembly | Direct labour hour | 120 | 1.40 | 168 |
| Packing | Direct labour hour | 40 | 2.50 | 100 |
| | | | Total | 1,078 |

**(iv) Department-wise statement of total under or over recovery of overheads**
**(a) Under current policy**

| | Departments | | | |
|---|---|---|---|---|
| | Machining ₹ | Assembly ₹ | Packing ₹ | Total ₹ |
| Direct Wages (Actual) | 96,000 | 2,70,000 | 90,000 | |
| Overheads recovered @ 125% of Direct wages: (A) | 1,20,000 | 3,37,500 | 1,12,500 | 5,70,000 |
| Actual overheads: (B) | 3,90,000 | 84,000 | 1,35,000 | 6,09,000 |
| (Under)/Over recovery of overheads: (A – B) | (2,70,000) | 2,53,500 | (22,500) | (39,000) |

**(b) As per methods suggested Basis of overhead recovery**

| | Machine hours | Direct Labour hours | Direct labour hours | Total ₹ |
|---|---|---|---|---|
| Hours worked | 96,000 | 90,000 | 60,000 | |
| Rate/hour (₹) | 4.50 | 1.40 | 2.50 | |
| Overhead recovered (₹): (A) | 4,32,000 | 1,26,000 | 1,50,000 | 7,08,000 |
| Actual overheads (₹): (B) | 3,90,000 | 84,000 | 1,35,000 | 6,09,000 |
| (Under)/Over recovery: (A – B) | 42,000 | 42,000 | 15,000 | 99,000 |

**(b)** Inter Firm Comparison, as the name indicates, is a technique by which a Company evaluates its performance with those of other firms in the same industry. Uniform Cost accounting is a must for such meaningful comparison. To facilitate such comparison and evaluation, generally a central organization is formed to collect the necessary data periodically in a standard format from all member industries. To safeguard the confidentiality of the individual firm's performance details, the data are collected as a ratio or percentage by the central organization in the industry. Information collected may relate to costs, capacity utilization, raw material usage, labour productivity, ROI etc.

**Question. 7**

**(a) A lorry starts with a load of 25 tonnes of goods from station A. It unloads 5 tonnes at station B and rest of goods at station C. It reaches back directly to station A after getting reloaded with 18 tonnes of goods at station C. The distance between A to B, B to C and then from C to A are 60 kms. 100, and 150 kms respectively. Compute 'Absolute tones – kms' and 'Commercial tones – kms'.**

**(b) A Company operates separate cost accounting and financial accounting systems. The following is the list of Opening balances as on 1.04.2014 in the Cost Ledger.**

| | **Debit** ₹ | **Credit** ₹ |
|---|---|---|
| **Stores Ledger Control Account** | **64,050** | **--** |
| **WIP Control Account** | **1,25,514** | **--** |
| **Finished Goods Control Account** | **36,936** | **--** |
| **General Ledger Adjustment Account** | | **2,26,500** |

**Transactions for the quarter ended 30.06.2014 are as under:**

| | ₹ |
|---|---|
| **Materials purchased** | **32,040** |
| **Materials issued to production** | **48,000** |
| **Materials issued for factory repairs** | **1,080** |
| **Factory wages paid (including indirect wages ₹ 23,000)** | **93,000** |
| **Production overheads incurred** | **1,14,240** |
| **Production overheads under-absorbed and written-off** | **3,840** |
| **Sales** | **3,07,200** |

**The Company's gross profit is 25% on Factory Cost. At the end of the quarter, WIP stocks increased by ₹ 9,000.**

**Prepare the relevant Control Accounts, Costing Profit and Loss Account and General Ledger Adjustment Account to record the above transactions for the quarter ended 30.06.2014.**

**[5+10 = 15]**

**Answer**

**(a) 'Absolute tones – kms'**: It is the sum total of tones – kms. arrived at by multiplying various distances by respective load quantities carried.

Mathematically it is:

= 25 tonnes × 60 kms + 20 tonnes × 100 kms + 18 tonnes × 150 kms.

= 6,200 tonnes – kms.

'**Commercial tones – kms**' = Average load × Total kms. travelled.

$= \left(\frac{25+20+18}{3}\right)$ tones × 310 kms.

= 6,510 tonnes – kms.

**(b)**

**General Ledger Adj. A/c**

| Dr. | | | Cr. |
|---|---|---|---|
| Particulars | ₹ | Particulars | ₹ |
| To Sales | 3,07,200 | By Balance b/d | 2,26,500 |
| To Balance c/d | 2,16,180 | By Stores ledger control A/c | 32,040 |
| | | By Wages control A/c | 93,000 |
| | | By Overheads control A/c | 1,14,240 |
| | | By Costing Profit & Loss A/c | 57,600 |
| | | | 5,23,380 |

**Stores ledger control A/c**

| Dr. | | | Cr. |
|---|---|---|---|
| Particulars | ₹ | Particulars | ₹ |
| To Balance b/d | 64,050 | By WIP control A/c | 48,000 |
| To General ledger adj. A/c | 32,040 | By Factory overhead control A/c | 1,080 |
| | | By Balance c/d | 47,010 |
| | 96,090 | | 96,090 |

**WIP control A/c**

| Dr. | | | Cr. |
|---|---|---|---|
| Particulars | ₹ | Particulars | ₹ |
| To Balance b/d | 1,25,514 | By Finished goods control A/c | 2,43,480 |
| To Stores ledger control A/c | 48,000 | By Balance c/d | 1,34,514 |
| To Wages control A/c | 65,400 | | |
| To Factory, O/H control A/c | 1,39,080 | | |
| | 3,77,994 | | 3,77,994 |

**Finished goods control A/c**

| Dr. | | | Cr. |
|---|---|---|---|
| Particulars | ₹ | Particulars | ₹ |
| To Balance b/d | 36,936 | By Cost of sales A/c (Refer to note) | 2,45,760 |
| To WIP control A/c | 2,43,480 | By Balance c/d | 34,656 |
| | 2,80,416 | | 2,80,416 |

**Note:**
Gross profit is 25% of Factory cost or 20% on sales.
Hence cost of sales = ₹ 3,07,200 – 20% of ₹ 3,07,200 = ₹ 2,45,760

**Factory overhead control A/c**

| Dr. | | | Cr. |
|---|---|---|---|
| Particulars | ₹ | Particulars | ₹ |
| To Stores ledger control A/c | 1,080 | By Costing & profit loss A/c | 3,840 |
| To Wages control A/c | 27,600 | By WIP control A/c | 1,39,080 |
| To General ledger adj. A/c | 1,14,240 | | |
| | 1,42,920 | | 1,42,920 |

**Cost of sales A/c**

| Dr. | | | Cr. |
|---|---|---|---|
| Particulars | ₹ | Particulars | ₹ |
| To Finished goods control A/c | 2,45,760 | By Costing Profit & Loss A/c | 2,45,760 |

**Sales A/c**

| Dr. | | | Cr. |
|---|---|---|---|
| Particulars | ₹ | Particulars | ₹ |
| To Costing Profit & Loss A/c | 3,07,200 | By GLA A/c | 3,07,200 |

**Wages control A/c**

| Dr. | | | Cr. |
|---|---|---|---|
| Particulars | ₹ | Particulars | ₹ |
| To General ledger adj. A/c | 93,000 | By Factory overhead control A/c | 27,600 |
| | | By WIP control A/c | 65,400 |
| | 93,000 | | 93,000 |

**Costing Profit & Loss A/c**

| Dr. | | | Cr. |
|---|---|---|---|
| Particulars | ₹ | Particulars | ₹ |
| To Factory O H Control A/c | 3,840 | By Sales A/c | 3,07,200 |
| To Cost of sales A/c | 2,45,760 | | |
| To General ledger adj. A/c | 57,600 | | |
| (Profit) | | | |
| | 3,07,200 | | 3,07,200 |

**Trial Balance (as on 30.6.2014)**

| Dr. | | Cr. |
|---|---|---|
| | ₹ | ₹ |
| Stores ledger control A/c | 47,010 | |
| WIP control A/c | 1,34,514 | |
| Finished goods control A/c | 34,656 | |
| To General ledger adjustment A/c | | 2,16,180 |
| | 2,16,180 | 2,16,180 |

**Question. 8**

**Write short note on any three** **[3 x 5 = 15]**

**(a) The points on which uniformity is essential before introducing uniform costing system**
**(b) The essential pre-requisites of integrated accounting system**
**(c) The treatment in cost accounts of the cost of small tools of short effective life**
**(d) Treatment of 'Research and development costs' in Cost Accounts**
**(e) Negotiated Transfer Pricing**

**Answer:**

**(a)** Points on which uniformity is essential before introducing uniform costing system are:

1. The firms in the industry should be willing to share / furnish relevant data/ information.
2. A spirit of cooperation and mutual trust should prevail among the participating firms.
3. Mutual exchange of ideas, methods used, special achievements made, research and know-how etc. should be frequent.
4. Bigger firms should take the lead towards sharing their experience and know-how with the smaller firms to enable the latter to improve their performance.
5. Uniformity must be established with regard to several points before the introduction of uniform costing in an industry. In fact, uniformity should be with regard to following points:
   - Size of the various units covered by uniform costing.
   - Production methods
   - Accounting methods, principles and procedures used.

**(b)** Essential pre-requisites of Integrated Accounting System:

**1.** The management's decision about the extent of integration of the two sets of books. Some concerns find it useful to integrate upto the stage of primary cost or factory cost while other prefer full integration of the entire accounting records.

**2.** A suitable coding system must be made available so as to serve the accounting purposes of financial and cost accounts.

**3.** An agreed routine, with regard to the treatment of provision for accruals, prepaid expenses, other adjustment necessary for preparation of interim accounts.

**4.** Perfect coordination should exist between the staff responsible for the financial and cost aspects of the accounts and an efficient processing of accounting documents should be ensured.

Under this system there is no need for a separate cost ledger. Of course, there will be a number of subsidiary ledgers; in addition to the useful Customers Ledger and the Bought Ledger, there will be: (a) Stores Ledger; (b) Stock Ledger and (c) Job Ledger.

**(c)** Small tools are mechanical appliances used for various operations on a work place, especially in engineering industries. Such tools include drill bits, chisels, screw cutter, files etc.

Treatment of cost of small tools of short effective life:
Small tools purchased may be capitalized and depreciated over life if their life is ascertainable. Revaluation method of depreciation may be used in respect of very small tools of short effective life. Depreciation of small tools may be charged to:

- Factory overheads
- Overheads of the department using the small tool.

Cost of small tools should be charged fully to the departments to which they have been issued, if their life is not ascertainable.

**(d)** Research and development costs:

It is the cost/expense incurred for searching new or improved products, production methods/techniques or plants/equipments. Re– search cost may be incurred- for carrying basic or applied research. Both basic and applied research relates to original investigations to gain from new scientific or technical knowledge and understanding, which is not directed towards any specific practical aim (under basic research) and is directed towards a specific practical aim or objective (under applied research).

Treatment in Cost Accounts: Cost of Basic Research (if it is a continuous activity) be charged to the revenues of the concern. It may be spread over a number of years if research is not a continuous activity and amount is large.

Cost of applied research, if relates-to all existing products and methods of production then it should be treated as a manufacturing overhead of the period during which it has been incurred and absorbed. Such costs are directly charged to the product, it is solely incurred for it.

If applied research is conducted for searching new products or methods of production etc. then the research costs treatment depends upon the outcome of such research. For example, if research findings are expected to produce future benefits or if it appears that such findings are going to result in failure then the costs incurred may be amortised by charging to the Costing Profit and Loss Account of one or more years depending upon the size of expenditure. If research proves successful, then such costs will be charged to the concerned product.

Development Costs begins with the implementation of the decision to produce a new or improved product or to employ a new or improved method. The treatment of development expenses is same as that of applied research.

**(e)** The transfer prices may be fixed on the basis of **'Negotiated Prices'** which are fixed through negotiations between the selling and the buying division. Sometimes it may happen that the concerned product may be available in the market at a cheaper price than charged by the selling division. In this situation the buying division may be tempted to purchase the product from outside sellers rather than the selling division. Alternatively the selling division may notice that in the outside market, the product is sold at a higher price but the buying division is not ready to pay the market price. Here, the selling division may be reluctant to sell the product to the buying

division at a price, which is less than the market price. In all these conflicts, the overall profitability of the firm may be affected adversely. Therefore it becomes beneficial for both the divisions to negotiate the prices and arrive at a price, which is mutually beneficial to both the divisions. Such prices are called as 'Negotiated Prices'. In order to make these prices effective care should be taken that both, the buyers and sellers should have access to the available data including about the alternatives available if any.
Similarly buyers and sellers should be free to deal outside the company, but care should be taken that the overall interest of the organization is not jeopardized.

- The main limitation of this method is that lot of time is spent by both the negotiating parties in fixation of the negotiated prices.
- Negotiating skills are required for the managers for arriving at a mutually acceptable price, otherwise there is a possibility of conflicts between the divisions.