# PAPER – 4: COST AND MANAGEMENT ACCOUNTING

**PART – I Multiple Choice Questions**

**Case Scenario - I**

*Skylark Electronics Company assembles and sells laptops in India. An important component of laptop is it's rechargeable battery. The company buys its monthly requirement of 4,500 batteries and it would buy its annual requirement in 10 equal instalments. The purchase cost of one battery is ₹ 800.*

*The batteries are used evenly throughout the year in the assembling process on 360 days per year. The ordering cost is ₹ 9000 per order and the inventory carrying cost is 37.50% per annum. The high carrying cost results from the need to keep the batteries in carefully controlled temperature under humid conditions along with high cost of insurance.*

*Delivery of the batteries from the vendor generally takes 6 days but it may go up to as much as 10 days. The days of delivery time and percentage of their occurrence are shown in the table below:*

| ***Delivery Time (Days)*** | ***6*** | ***7*** | ***8*** | ***9*** | ***10*** |
|---|---|---|---|---|---|
| *Percentage of Occurrence (%)* | *70* | *15* | *5* | *5* | *5* |

*On the basis of above case scenario, you are required to answer the following MCQs 1 to 5.*

1. *At what quantity of purchase of batteries, the ordering costs will be equal to the inventory carrying costs?*

   *(A) 1,600*

   *(B) 1,700*

   *(C) 1,800*

   *(D) 1,900*

2. *What will be the total annual cost of purchases as per the quantity calculated in Q-1 above?*

(A) ₹ 3,84,80,000

(B) ₹ 4,37,40,000

(C) ₹ 4,29,30,000

(D) ₹ 5,80,84,000

3. *Assuming that the company is willing to take a 15% risk of being out of stock, what would be the safety stock and the Re-order point?*

(A) *Safety stock 1050 batteries and Re-order point 2250 batteries*

(B) *Safety stock 2250 batteries and Re-order point 1050 batteries*

(C) *Safety stock 1450 batteries and Re-order point 2850 batteries*

(D) *Safety stock 1250 batteries and Re-order point 2650 batteries*

4. *Assuming that the company is willing to take a 5% risk of being out of stock what would be the safety stock and Re-order point?*

(A) *Safety stock 1100 batteries and Re-order point 2800 batteries*

(B) *Safety stock 1350 batteries and Re-order point 2550 batteries*

(C) *Safety stock 1280 batteries and Re-order point 2900 batteries*

(D) *Safety stock 1550 batteries and Re-order point 3280 batteries*

5. *Assuming 5% risk of out of stock what would be the total cost of ordering and carrying inventory for one year?*

(A) ₹ 5,40,000

(B) ₹ 8,15,000

(C) ₹ 9,45,000

(D) ₹ 10,80,000

**Case Scenario - II**

*Allure Metallurgy Ltd. is a stainless-steel manufacturing company which manufactures two grades of stainless steel products namely SS304 & SS316 made of a common raw material iron procured at ₹ 52 per kg from the market. The usage of the raw material is expected to be at a constant rate over the entire period. The raw material supplier to the company charges ₹ 24,000 per order but its delivery is limited to 1200 tons per annum. There is no alternate source to*

*procure the raw material. In consideration of the above limitations, the company decided to review its inventory management policies for the forthcoming year.*

*The following forecasted information has been extracted from departmental estimates for the budget year ending on 31 March 2025:*

| | ***SS304*** | ***SS316*** |
|---|---|---|
| *Sales (units)* | *56,000* | *86,000* |
| *Finished Goods stock increase by year end (units)* | *1,614* | *1,215* |
| *Post Production rejection rate (%)* | *3* | *7* |
| *Iron usage in kg (per completed unit, net of wastage)* | *5.5* | *8* |
| *Iron wastage (%)* | *8* | *11* |

*You are required to calculate the following (MCQ's 6 to 10):*

6. *The minimum number of units of SS304 & SS316, the company shall produce to justify the sales forecast would be:*

   *(A) 56,000 & 86,000*

   *(B) 57,614 & 87,215*

   *(C) 59,396 & 93,780*

   *(D) 64,561 & 1,05,371*

7. *The ratio in which the raw material utilized for SS304 & SS316 from the total quantity of raw material procured, to produce the number of units desired in Q-6 above?*

   *(A) 29.59% & 70.24%*

   *(B) 29.64% & 70.36%*

   *(C) 30.33% & 69.67%*

   *(D) 38.77% & 61.23%*

8. *Assuming that all the available 1200 tons of raw material is procured per annum and would be utilized for production, what would be the raw material needed for production of SS 304 in order to maintain the same production mix arrived in Q-7 above?*

   *(A) 3,26,678 kg*

   *(B) 3,27,209 kg*

(C) 3,55,085 kg

(D) 3,55,663 kg

9. Assuming that all the available 1200 tons of raw material is procured per annum and would be utilized for production, what would be the raw material needed for production of SS 316 in order to maintain the same production mix arrived in Q-7 above?

(A) 7,50,240 kg

(B) 7,51,460 kg

(C) 8,42,966 kg

(D) 8,44,337 kg

10. Keeping the management purchase policy & production quantity mix in consideration for SS304 & SS316, the maximum number of units of each product that company would produce (in units) respectively by utilizing 1200 tons of raw material:

(A) 59,396 & 93,780

(B) 59,493 & 93,933

(C) 64,561 & 1,05,371

(D) 64,666 & 1,05,542

11. Healthy & Fit Ltd. manufactures & sells a single product captioned as 'Exercise bikes'. The estimated units to be sold in the last quarter of the year 2024-25 are as under:

| Particulars | January 2025 | February 2025 | March 2025 |
|---|---|---|---|
| Exercise bikes (in units) | 1,500 | 1,800 | 1,000 |

The company's policy is to hold closing stock of finished goods at 20% of the expected sales volume of the succeeding month.

Each unit of exercise bike requires one unit of main body with resistance system & two units of pedals. Calculate the number of pedals required to be purchased for January 2025 production.

(A) 1,560 pedals

(B) 1,440 pedals

(C) 3,120 pedals

(D) 2,880 pedals

12. A company which operates a batch costing system is fully integrated with the financial accounts.

During a particular period materials worth ₹30,000 and ₹20,000 were issued to production and Factory Maintenance respectively. The following control A/cs are being maintained.

(i) Store ledger control A/c.

(ii) Work-in-progress control A/c.

(iii) Production overhead control A/c.

(iv) Finished goods control A/c.

From the above information, identify which account/accounts will be debited to effectuate the issuance of materials:

(A) (i) & (ii)

(B) (ii) & (iii)

(C) (ii) & (iv)

(D) Only (i)

13. A Lorry starts with a load of 15 tons of goods from Station 'X'. It unloads 5 tons in Station 'Y' and balance goods in Station 'Z'. On return trip, it reaches Station 'X' with a load of 8 tons, loaded at Station 'Z'. The distance between X to Y, Y to Z and Z to X are 50 kms, 60 kms and 80 kms, respectively.

Compute "Absolute Tons-Kilometre" and "Commercial Tons-Kilometre".

(A) 1,690 & 2,000

(B) 1,990 & 2,090

(C) 2,090 & 1,990

(D) 2,100 & 1,980

14. A company forecasts its labour costs and material cost to go up by 12% and 8% respectively per unit in the next financial year. If the ratio between material and labour is 5: 3, determine the increase in selling price as a percentage that the company shall keep to maintain its P/V of 12%, assuming variable overheads as nil.

*(A) 7.45%*

*(B) 8.01%*

*(C) 9.95%*

*(D) 9.46%*

15. *A spice is passed through two processes and the output of Process I-Grinding, transferred to Process II-Packaging. The input units in Process 1 are 7,500 kgs and the output units are 7,275 kgs, abnormal gain is 150 kgs.*

*You are required to calculate the normal loss percentage and value of abnormal gain, if the total expenses incurred in Process I are ₹ 1,50,750 and scrap has realisable value of ₹ 3 per unit.*

*(A) 4% and ₹ 3,174*

*(B) 5% and ₹ 3,200*

*(C) 5% and ₹ 3,150*

*(D) 5.10% and ₹ 3,015*

**Answer Key**

| MCQ. No. | Correct Answer |
|---|---|
| 1 | C |
| 2 | B |
| 3 | None |
| 4 | None |
| 5 | None |
| 6 | C |
| 7 | B |
| 8 | D |
| 9 | D |
| 10 | B |
| 11 | C |
| 12 | B |
| 13 | B |
| 14 | D |
| 15 | C |

**PART – II Descriptive Questions**

*Question No. **1** is compulsory.*

*Attempt any **four** questions out of the remaining **five** questions.*

*In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.*

*Working notes should form part of the answer.*

**Question 1**

(a) *Axion Industries is a heavy industrial gear manufacturing company with a manufacturing setup based in Pune. Mr. Andrew, the CFO of the company furnished the following information to Mr. Joe who heads the Finance department.*

*For FY 2024-25:*

| ***Particulars*** | ***Amount ₹ (in crores)*** |
|---|---|
| *Total Sales* | *1,00,000* |
| *Raw material cost* | *50,000* |
| *Direct wages* | *15,000* |
| *Fixed & variable overheads* | *25,000* |
| *Profit* | *10,000* |
| *Total Number of Units sold* | *40,000 units* |

*The market being very competitive and with the raw materials rates rising, Mr. Andrew raises his concern with Mr. Joe where he expects in the next financial year 2025-26 workers' wages to rise by 20%, fixed costs component to decrease by ₹ 500 crores. Total fixed & variable overhead however is to be ₹ 28,500 crores. Total fixed & variable overhead however is to be ₹ 28,500 crores. The total number of units expected to be sold would be 50,000.*

***Required:***

*Calculate the minimum number of units to be sold to sustain the same per unit profit in the financial year 2025-26 also.*

*(Ignore further effects on Fixed costs.)* ***(5 Marks)***

(b) *Aroma Park Ltd. Produces two perfumes named Floral, Oriental, and one Cologne, all created through a joint production process. Below are the data from the most recent month of production:*

| | **Products** | | |
|---|---|---|---|
| | **Floral** | **Oriental** | **Cologne** |
| *Sales Price* | ₹ 80 | ₹200 | ₹ 300 |
| *Quantity (in units)* | 5,000 | 3,000 | 2,000 |
| *Joint Cost* | ₹ 60 | ₹ 60 | ₹ 60 |
| *Cost after split off* | ₹ 40 | ₹ 80 | ₹ 100 |
| *Total cost* | ₹ 100 | ₹ 140 | ₹ 160 |

*The management on reviewing the above cost data is of the opinion that either they are selling the largest – volume product at a loss or the product cost data is flawed.*

***Required:***

(i) *Prepare statement showing profit / loss for each product based on the given data.* ***(2 Marks)***

(ii) *Respond to the management perception by showing joint cost apportionment under Net Realisable Value method.* ***(3 Marks)***

(c) *Following information is given of a newly setup organization for the year ended on 31st March, 2025:*

| | |
|---|---|
| *Number of workers replaced during the period* | *78* |
| *Number of workers left and discharged during the period* | *28* |
| *Employee turnover rates using separation method* | *3.5%* |

***Required:***

*Compute the employee turnover rates using:*

(i) *Replacement method and* ***(2 Marks)***

(ii) *Flux method* ***(2 Marks)***

**Answer**

**(a) (i) Calculation of Variable Overhead Per Unit & Fixed Cost (F.Y. 2024-25)**

$$\text{Variable cost per unit} = \frac{\text{Difference in Total Cost}}{\text{Difference in Units}}$$

$$= \frac{₹\ 28,500 \text{ crores} - ₹\ 25,000 \text{ crores}}{50,000 \text{ units} - 40,000 \text{ units}}$$

= ₹ 0.35 crore per unit

Therefore, Fixed cost = ₹ 25,000 crores - (40,000 x 0.35) = ₹ 11,000 crores

Revised Fixed cost (FY 2025-26) = 10,500 Crores

Desired Profit per unit (₹ 10,000 crores/40,000 units) = ₹ 0.25 crores per unit

**Calculation of Contribution per unit**

| **Particulars** | | **Per Unit (₹ in crores)** |
|---|---|---|
| Selling price per unit | | 2.50 |
| **Variable Cost:** | | |
| Material | 1.25 | |
| Labour (0.375 x 120%) | 0.45 | |
| Variable Overheads | 0.35 | 2.05 |
| **Contribution per Unit** | | **0.45** |

Let the units sold be X

Contribution = 0.45X

Profit = 0.25X

Profit = Contribution – Fixed Cost

0.25X = 0.45X – 10,500 Crores

Minimum no. of units to be sold to sustain the same per unit profit, X = 52,500 Units

**Alternatively, solution can be done in following way:**

**Calculation of Variable Overhead Per Unit & Fixed Cost (F.Y. 2024-25)**

$$\text{Variable cost per unit} = \frac{\text{Difference in Total Cost}}{\text{Difference in Units}}$$

$$= \frac{₹\ 29,000 \text{ crores} - ₹\ 25,000 \text{ crores}}{50,000 \text{ units} - 40,000 \text{ units}}$$

= ₹ 0.40 crore per unit

Therefore, Fixed cost = ₹ 25,000 crores - (40,000 x 0.40) = ₹ 9,000 crores

Revised Fixed cost (FY 2025-26) = 8,500 Crores

Desired Profit per unit (₹ 10,000 crores/40,000 units) = ₹ 0.25 crores per unit

**Calculation of Contribution per unit (2025-26)**

| **Particulars** | | **Per Unit (₹ in crores)** |
|---|---|---|
| Selling price per unit | | 2.50 |
| **Variable Cost:** | | |
| Material | 1.25 | |
| Labour (0.375 x 120%) | 0.45 | |
| Variable Overheads | 0.40 | 2.10 |
| **Contribution per Unit** | | **0.40** |

Let the units sold be X

Contribution = 0.40X

Profit = 0.25X

Profit = Contribution – Fixed Cost

0.25X = 0.40X – 8,500 Crores

Minimum no. of units to be sold to sustain the same per unit profit, X = 56,667 Units

**(b) (i) Statement showing profit/loss by each product after further processing products**

| | Floral (in ₹) | Oriental (in ₹) | Cologne (in ₹) | Total (in ₹) |
|---|---|---|---|---|
| Sales price after further processing | 80 | 200 | 300 | |
| Less: Cost after split off | 40 | 80 | 100 | |
| Less: Joint Cost (already apportioned) | 60 | 60 | 60 | |
| Profit/(loss) per unit | (20) | 60 | 140 | |
| Quantity (in units) | 5,000 | 3,000 | 2,000 | |
| **Profit/(loss)** | **(1,00,000)** | **1,80,000** | **2,80,000** | **3,60,000** |

**(ii) Apportionment of joint costs on the basis of Net Realisable Value method**

| | Floral (in ₹) | Oriental (in ₹) | Cologne (in ₹) | Total (in ₹) |
|---|---|---|---|---|
| Sales price | 80 | 200 | 300 | |
| Less: Post split-off cost (Further processing cost) | 40 | 80 | 100 | |
| Net Realisable Value per unit | 40 | 120 | 200 | |
| Net Realisable Value | 2,00,000 (₹ 40 × 5,000) | 3,60,000 (₹ 120 × 3,000) | 4,00,000 (₹ 200 × 2,000) | |

| | | | | |
|---|---|---|---|---|
| Apportionment of Joint Cost of ₹ 6,00,000* in ratio of 5:9:10 | 1,25,000 | 2,25,000 | 2,50,000 | |
| **Total Profit** | **75,000** | **1,35,000** | **1,50,000** | **3,60,000** |

*Total Joint Cost = 60 x 5,000 + 60 x 3,000 + 60 x 2,000 = 6,00,000

**Note:** Profitability statement prepared after distributing joint cost based on NRV clearly shows that they are not selling its largest volume product, i.e floral at a loss. Actually, it yields a profit of ₹ 75,000.

**(c)** Employee turnover rate (Separation method)

$$= \frac{\text{No. of Separations (S)}}{\text{Average number of workers on roll}} \times 100$$

$$\frac{3.5}{100} = \frac{28}{\text{Average number of workers on roll}}$$

$$\text{Average number of workers on roll} = \frac{28 \times 100}{3.5} = 800$$

(i) Employee Turnover rate using Replacement method

$$= \frac{\text{No. of replacements}}{\text{Average number of workers on roll}} \times 100$$

$$= \frac{78 \times 100}{800} = 9.75\%$$

(ii) Employee turnover rate (Flux method)

$$= \frac{\left(\begin{array}{l}\text{Number of employees}\\ \text{separated}\end{array} + \begin{array}{l}\text{Number of employees}\\ \text{replaced during the period}\end{array}\right)}{\text{Average number of employees during the period on roll}} \times 100$$

$$= \frac{28+78}{800} \text{ x } 100 = 13.25\%$$

**Question 2**

*(a) Kidz Company manufactures and sells two models of baby toys namely, Max and Pro. During the Financial Year 2024-25, 1,500 units of Max and 3,600 units of Pro were manufactured. However, only 60% of Max and 80% of Pro were sold during the year. Labour cost per unit of Max is two times that of Pro. There was no opening stock of finished goods or work-in progress.*

*The cost particulars of the two models of Baby Toys are given below:*

| ***Particulars*** | ***Max (₹)*** | ***Pro (₹)*** | ***Total (₹)*** |
|---|---|---|---|
| *Material Cost* | *42,000* | *63,000* | *1,05,000* |
| *Labour Cost* | *-* | *-* | *1,21,000* |

*Further, the cost controller of the factory informed that:*

- *Works overhead is 50% of labour cost*
- *Office overhead is recovered at 20% of works cost.*
- *Selling and distribution overhead is ₹20 and ₹30 per unit sold for Model Pro and Model Max respectively.*

***Required:***

*(i) Prepare a cost sheet for the financial year 2024-25, showing the various elements of cost for each model of Baby Toys (Prime cost, work cost, cost of production, cost of goods sold and cost of sales).*

*(ii) Calculate the per unit selling price of each model of Baby Toys if profit is charged at 20 percent on sales.* ***(7 Marks)***

*(b) A plastic manufacturing company is operating with an employment of 128 skilled workers. The product is in great demand. The company desires to increase production to meet market demand but is short of skilled workers. The company finds extremely difficult to find new skilled workers to fulfil its demands. The company is considering the introduction of an incentive scheme – either Halsey scheme (with 50% bonus) or Rawan scheme of wage payment for increasing the labour productivity to cope up the increasing demand.*

*The company believes that if the proposed incentive scheme could bring about an average 15% increase over the present earnings of the workers, it*

*could act as sufficient incentive for them to produce more with increased efficiency.*

*The following data is worth consideration, in measuring the increase in productivity for the month of April 2025.*

| | |
|---|---|
| *Hourly rate of wages (guaranteed)* | *₹ 30* |
| *Maximum time allowed to produce one unit by one worker* | *2.5 hours* |
| *Number of working days in the month* | *25* |
| *Number of workers hours per day of each worker* | *8* |
| *Actual production during the month (units)* | *12,500* |

***Required:***

*(i) Calculate the effective rate of earnings under the Halsey scheme and the Rowan scheme.*

*(ii) Calculate the increased labour efficiency on introduction of the incentive schemes.*

*(iii) Calculate the savings to the plastic company in terms of direct labour cost per unit under both the schemes.*

*(iv) Advise the company about the selection of the scheme to fulfil their assurance.* ***(7 Marks)***

**Answer**

**(a) Preparation of Cost Sheet for FY 2024-25**

| Particulars | Max (₹) | Pro (₹) | Total (₹) |
|---|---|---|---|
| Direct materials | 42,000 | 63,000 | 1,05,000 |
| Direct wages (Working note- (i)) | 55,000 | 66,000 | 1,21,000 |
| **Prime cost** | **97,000** | **1,29,000** | **2,26,000** |
| Work overhead (50% of labour cost) | 27,500 | 33,000 | 60,500 |
| **Factory Cost/Work Cost** | **1,24,500** | **1,62,000** | **2,86,500** |
| Administration/Office Overhead (20 % of work cost) | 24,900 | 32,400 | 57,300 |
| **Cost of production** | **1,49,400** | **1,94,400** | **3,43,800** |

| | | | |
|---|---|---|---|
| Less: Closing stock (Working note- (ii)) | (59,760) | (38,880) | (98,640) |
| **Cost of goods sold** | **89,640** | **1,55,520** | **2,45,160** |
| Selling and distribution overhead | 27,000 (₹ 30 x 900) | 57,600 (₹ 20 x 2,880) | 84,600 |
| **Cost of sales/ Total cost** | **1,16,640** | **2,13,120** | **3,29,760** |
| Profit (20% on sales or 25% of cost) | 29,160 | 53,280 | 82,440 |
| **Sales value** | **1,45,800** | **2,66,400** | **4,12,200** |
| **Selling price per unit** | **162** | **92.5** | |

**Working Notes:**

(i) Direct labour cost per unit of Pro = M

Direct labour cost per unit of Max = 2M

Total Direct labour cost = M x 3,600 units + 2M × 1,500 units

₹ 1,21,000 = 3,600 M + 3,000 M

M = ₹ 18.333

Therefore, Direct labour Cost per unit of Max

= 2 x ₹ 18.33 = ₹ 36.667

Total labour cost of Pro = ₹ 18.333 x 3,600 units

= ₹ 66,000

Total labour cost of Max = ₹ 36.667 x 1,500 units

= ₹ 55,000

(ii) Value of closing stock

| Particulars | Max (units) | Pro (units) |
|---|---|---|
| No. of units produced | 1,500 | 3,600 |
| No. of units sold | 60% of 1,500 = 900 | 80% of 3,600 = 2,880 |
| Closing Stock | 600 | 720 |

Max = (1,49,400/1,500) x 600 = ₹ 59,760

Pro = (1,94,400/3,600) x 720 = ₹ 38,880

**Note:** If a student assumes Office overheads as general overheads, then it will be part of cost of sales.

**(b) Working Notes:**

1. Actual time taken to produce 12,500 pieces

   = No. of working days in the month × No. of working hours per day of each worker × No. of workers

   = 25 days × 8 hrs. × 128 workers = 25,600 hours

2. Total time wages of 128 workers per month:

   = No. of working days in the month × No. of working hours per day of each worker × Hourly rate of wages × No. of workers

   = 25 days × 8 hrs. × ₹ 30 × 128 workers = ₹ 7,68,000

3. Time saved per month:

| | |
|---|---|
| Time allowed per piece to a worker | 2.5 hours |
| No. of units produced during the month by 128 workers | 12,500 pieces |
| Total time allowed to produce 12,500 pieces (12,500 × 2.5 hours) | 31,250 hours |
| Actual time taken to produce 12,500 pieces | 25,600 hours |
| Time saved (31,250 hours – 25,600 hours) | 5,650 hours |

4. Bonus under Halsey scheme to be paid to 128 workers:

   Bonus = (50% of time saved) × hourly rate of wages

   = 50/100 × 5,650 hours × ₹ 30 = ₹ 84,750

Total wages to be paid to 128 workers are (₹ 7,68,000 + ₹ 84,750) ₹ 8,52,750, if company considers the introduction of Halsey Incentive Scheme to increase the employee productivity.

5. Bonus under Rowan Scheme to be paid to 128 workers:

$$\text{Bonus} = \frac{\text{Time taken}}{\text{Time allowed}} \times \text{Time saved} \times \text{hourly rate}$$

$$= \frac{25,600 \text{ hours}}{31,250 \text{ hours}} \times 5,650 \text{ hours} \times ₹ 30 = ₹1,38,854.4$$

Total wages to be paid to 128 workers are (₹ 7,68,000 + ₹ 1,38,854.4) ₹ 9,06,854.4, if company considers the introduction of Rowan Incentive Scheme to increase the Employee productivity.

(i) (a) Effective hourly rate of earnings under Halsey scheme:

(Refer to Working Notes 1, 2, 3 and 4)

$$= \frac{\text{Total time wages of 128 workers + Total bonus under Halsey scheme}}{\text{Total hours worked}}$$

$$= \frac{₹ 8,52,750}{25,600 \text{ hours}} = ₹ 33.310$$

(b) Effective hourly rate of earnings under Rowan scheme:

(Refer to Working Notes 1, 2, 3 and 5)

$$= \frac{\text{Total time wages of 128 workers} + \text{Total bonus under Rowan scheme}}{\text{Total hours worked}}$$

$$= \frac{₹ 9,06,854.4}{25,600 \text{ hours}} = ₹35.424$$

(ii) Efficiency in % on introduction of the incentive schemes

$$= \frac{\text{Time allowed as per standard}}{\text{Time Taken}} \times 100$$

$$= \frac{31,250 \text{ hours}}{25,600 \text{ hours}} = 122.07\%$$

Labour efficiency has increased by 22.07%

(iii) (a) Saving in terms of direct Employee cost per piece under Halsey scheme:

(Refer to Working Note 4)

Employee cost per piece (under time wage scheme)

= 2.5hours × ₹ 30 = ₹ 75.

Employee cost per piece (under Halsey scheme)

$$= \frac{\text{Total wages paid under the scheme}}{\text{Total number of units produced}} = \frac{₹\,8,52,750}{12,500} = ₹\ 68.22$$

Saving per piece: (₹75 – ₹68.22) = ₹6.78

(b) Saving in terms of direct Employee cost per piece under Rowan Scheme:

(Refer to Working Note 5)

Employee cost per piece under Rowan scheme

$$= \frac{₹\ 9,06,854.4}{12,500} = ₹72.548$$

Saving per piece = ₹ 75 – ₹ 72.548 = ₹ 2.452

(iv) Since the company has assured 15% increase over present earnings i.e. ₹ 7,68,000 which comes to ₹ 8,83,200 and total wages under halsey scheme and rowan scheme are ₹8,52,750 and ₹ 9,06,854.4 respectively, so the company is advised to select the rowan scheme of wage payment to fulfill its requirement of 15% increase.

**Question 3**

*(a) Meri Chai Teri Chai Ltd., is engaged in manufacturing three products:*

- *Ginger Chai*
- *Masala Chai*
- *Saffron Chai*

*It calculates activity cost rates based on cost driver capacity.*

| ***Activity*** | ***Cost driver*** | ***Capacity*** | ***Cost (₹)*** |
|---|---|---|---|
| *Machine Setup* | *Number of setups* | *64* | *7,68,000* |

| | | | |
|---|---|---|---|
| *Machine Processing* | *Machine hours* | *1,40,000* | *7,00,000* |
| *Quality inspection* | *Number of inspections* | *544* | *6,80,000* |
| *Packaging* | *Number of packings* | *600* | *7,20,000* |

*For the year ended 31st March 2025, the following consumption of cost drivers was reported:*

| ***Product*** | ***Number of setups*** | ***Machine hours*** | ***Number of inspections*** | ***Number of packings*** |
|---|---|---|---|---|
| *Ginger Chai* | *21* | *45,000* | *190* | *190* |
| *Masala Chai* | *22* | *50,000* | *204* | *250* |
| *Saffron Chai* | *17* | *40,000* | *150* | *150* |

***Required:***

*(i) Compute the costs allocated to each product from each activity on the basis of Activity- Based Costing method.*

*(ii) Calculate the cost of unused capacity for each activity.* ***(8 Marks)***

*(b) Max Cinemas has three types of seats – Classic, Prime & Recliner where the total capacity is 306 seats, which are divided in the ratio of 12: 4: 1 respectively. The ticket price of Prime is twice of Classic ticket price and that of Recliner is thrice of Prime ticket price. Following information is given:*

| ***Types of seats*** | ***Occupancy percentage*** |
|---|---|
| *Classic* | *75%* |
| *Prime* | *50%* |
| *Recliner* | *50%* |

*On a daily basis, 4 movie shows are run throughout the year. The total cost per day is estimated to be ₹ 77,760. Assume 25% profit on total revenue.*

***Required:***

*(i) Calculate Equivalent Classic seats per day.*

*(ii) Calculate Ticket prices of all three types of seats.* ***(6 Marks)***

**Answer**

**(a) Working Note:**

**Cost Driver Rates-**

| Activity | Cost | Cost Driver Basis | Cost Driver | Cost Driver Rate |
|---|---|---|---|---|
| | (₹) | | (Units) | (₹) |
| Setup | 7,68,000 | Number of setups | 64 | 12,000 per setup |
| Processing | 7,00,000 | Machine Hours | 1,40,000 | 5 per machine hour |
| Inspection | 6,80,000 | Number of inspections | 544 | 1,250 per inspection |
| Packaging | 7,20,000 | Number of packings | 600 | 1,200 per packing |

**(i) Computation of cost allocated to each product - Activity Based Costing**

| Products | Ginger Chai (₹) | Masala Chai (₹) | Saffron Chai (₹) |
|---|---|---|---|
| Setup Costs @ ₹ 12,000 *per setup* (21,22,17) | 2,52,000 | 2,64,000 | 2,04,000 |
| Machine Processing Costs @ ₹ 5 *per hour* (45,000, 50,000, 40,000) | 2,25,000 | 2,50,000 | 2,00,000 |
| Inspection Costs @ ₹ 1,250 *per inspection* (190,204,150) | 2,37,500 | 2,55,000 | 1,87,500 |
| Packaging Costs @ ₹ 1,200 *per packing* (190,250,150) | 2,28,000 | 3,00,000 | 1,80,000 |
| Total Costs | 9,42,500 | 10,69,000 | 7,71,500 |

**(ii) Computation of cost of unused capacity for each activity**

| Activity | Unused Capacity | Total Cost (₹) |
|---|---|---|
| Setup Costs @ ₹ 12,000 *per setup* | 4 setups | 48,000 |

| | | |
|---|---|---|
| Machine Processing Costs @ ₹ 5 *per hour* | 5,000 machine hours | 25,000 |
| Inspection Costs @ ₹ 1,250 *per inspection* | - | - |
| Packaging Costs @ ₹ 1,200 *per packing* | 10 packings | 12,000 |
| Total Costs | | 85,000 |

**(b) (i) Total Equivalent Classic seats per day:**

| Type of Seats | Occupied seats per day | Equivalent Classic seats per day |
|---|---|---|
| Classic | 648 (216 seats x 75% x 4 shows) | 648 (648 × 1) |
| Prime | 144 (72 seats x 50% x 4 shows) | 288 (144 × 2) |
| Recliner | 36 (18 seats x 50% x 4 shows) | 216 (36 × 6) |
| | | 1,152 |

**(ii) Calculation of Ticket Prices for all types of seats:**

Total cost per day = ₹ 77,760

Profit is 25% on total revenue

$\therefore$ Total Revenue $= \frac{₹\ 77,760}{75} \times 100 = ₹\ 1,03,680$

**Calculation of Ticket Price for Classic seat per show:**

Total Revenue / Equivalent Classic Seats per day $= \frac{₹\ 1,03,680}{1,152} = ₹\ 90$

**Ticket Prices for all three types of seats:**

Ticket price per show for Classic Seat = ₹ 90

Ticket price per show for Prime Seat = ₹ 90 x 2 = ₹ 180

Ticket price per show for Recliner Seat = ₹ 90 x 6 = ₹ 540

**Question 4**

(a) *NT Ltd. showed a net loss of ₹ 9,000 as per their cost accounts for the year ended 31-03-2025. However, the financial books disclosed a net profit of ₹ 7,000 for the same period. The following information was revealed as a result of scrutiny of the figures of both the sets of books:*

| | **(₹)** |
|---|---|
| *Factory overheads absorbed* | *52,000* |
| *Selling & distribution overheads over absorbed* | *6,000* |
| *Administrative overheads under absorbed* | *7,500* |
| *Interest on Loan* | *8,800* |
| *Dividend received* | *9,000* |
| *Factory overheads charged* | *45,000* |
| *Depreciation charged in financial accounts* | *42,000* |
| *Depreciation recovered in cost accounts* | *45,000* |

*There is the difference in the value of closing stock of finished goods due to varying basis of valuation. 500 units of closing stock is valued at ₹ 41,000 in cost accounts whereas market price per unit of closing stock is ₹ 80 per unit.*

*It is found that there is still a difference in the reconciliation statement after considering all of the above which is due to the excess of raw material consumption in cost accounts.*

***Prepare:***

*(i) A reconciliation statement taking net loss as per cost accounts as base, and*

*(ii) Find out the excess of material consumption during the period in cost accounts effectuated the difference in reconciliation.* ***(8 Marks)***

(b) *A manufacturing unit using Standard costing system and the following information was obtained from its records:*

| | ***Standard*** | ***Actual*** |
|---|---|---|
| *Production* | *4,800 units* | *4,560 units* |
| *Working days* | *25* | *27* |

| | | |
|---|---|---|
| *Fixed overhead* | *₹ 48,000* | *₹ 46,800* |
| *Variable overhead* | *₹ 14,400* | *₹ 14,400* |

***Required:***

*Calculate the following overhead variances:*

*(i) Variable overhead variance*

*(ii) Fixed overhead variance*

*(iii) Fixed overhead Expenditure variance*

*(iv) Fixed overhead Volume variance*

*(v) Fixed overhead Calendar variance* ***(6 Marks)***

**Answer**

**(a) (i) Statement of Reconciliation of profit as obtained under Cost and Financial Accounts**

| | | (₹) | (₹) |
|---|---|---|---|
| | **Net Loss as per Cost Records** | | **(9,000)** |
| *Add:* | Excess of Material Consumption (see below) | 8,300 | |
| | Factory Overhead over-absorbed (₹ 52,000 - ₹ 45,000) | 7,000 | |
| | Selling & Distribution Overhead over-absorbed | 6,000 | |
| | Dividend Received | 9,000 | |
| | Depreciation over-charged (₹ 45,000 - ₹ 42,000) | 3,000 | 33,300 |
| | | | 24,300 |
| *Less:* | Administration Overhead under-absorbed | 7,500 | |
| | Interest on Loan | 8,800 | |
| | Over-valuation of Closing Stock of Finished Goods (₹ 41,000 - ₹ 40,000) (₹ 80 p.u. x 500 units = ₹ 40,000 in financial accounts) | 1,000 | (17,300) |
| | **Profit as per Financial Records** | | **7,000** |

**(ii) Statement showing calculation of excess of material consumption in cost accounts:**

| | | (₹) | (₹) |
|---|---|---|---|
| | **Net Loss as per Cost Records** | | **(9,000)** |
| *Add:* | Excess of Material Consumption | X | |
| | Factory Overhead over-absorbed | 7,000 | |
| | Selling & Distribution Overhead over-absorbed | 6,000 | |
| | Dividend Received | 9,000 | |
| | Depreciation over-charged | 3,000 | X + 25,000 |
| | | | X + 16,000 |
| *Less:* | Administration Overhead under-absorbed | 7,500 | |
| | Interest on Loan | 8,800 | |
| | Over-valuation of Closing Stock of Finished Goods | 1,000 | (17,300) |
| | **Profit as per Financial Records** | | **X -1,300** |

Therefore, x – 1,300 = 7,000

Or x = 7,000 + 1,300

= 8,300

Excess of material consumption during the period in cost accounts is ₹ 8,300.

**(b) (i) Variable Overhead Variance:**

= Standard Overhead for Actual Production - Actual Variable Overhead

$$= \left(\frac{₹\,14,400}{4,800\ \text{units}} \times 4,560\ \text{units}\right) - ₹\ 14,400$$

= ₹ 13,680 – ₹ 14,400 = ₹ 720 (A)

**(ii) Fixed Overhead Variance:**

= Absorbed Fixed Overhead – Actual Fixed Overhead

$$= \left(\frac{₹\ 48,000}{4,800\ \text{units}} \times 4,560\ \text{units}\right) - ₹\ 46,800$$

= ₹ 45,600 - ₹ 46,800 = ₹ 1,200 (A)

(iii) **Fixed Overhead Expenditure Variance:**

= Budgeted Fixed Overhead – Actual Fixed Overhead

= ₹ 48,000 - ₹ 46,800 = ₹ 1,200 (F)

(iv) **Fixed Overhead Volume Variance:**

= Absorbed Fixed Overhead – Budgeted Fixed Overhead

$$= \left(\frac{₹\ 48,000}{4,800\ \text{units}} \times 4,560\ \text{units}\right) - ₹\ 48,000$$

= ₹ 45,600 - ₹ 48,000 = ₹ 2,400 (A)

(v) **Fixed Overhead Calendar Variance:**

= (Actual Days - Budgeted Days) x Standard rate per day

$$= (27\ \text{days} - 25\ \text{days}) \times \frac{₹\ 48,000}{25\text{days}} = ₹\ 3,840\ (F)$$

**Question 5**

*(a) Furniture Wala Ltd., a manufacturer of dining tables, procures wood as its direct material. The dining tables are initially processed in the Moulding department and subsequently transferred to the Laminating department, where a plastic layer is applied.*

*The Moulding department began manufacturing 35,000 initial dining tables during the month of March 2025 for the first time and their cost is as follows:*

| | |
|---|---|
| *Direct material:* | *₹ 1,15,500* |
| *Moulding costs:* | *₹ 59,500* |
| *Total* | *₹ 1,75,000* |

*A total of 28,000 dining tables were completed and transferred to the Laminating department, the rest 7,000 were still in the Moulding process at the end of the month. All of the Moulding department's direct materials were*

*placed but on average, only 25% of the conversion costs were applied to the ending work in progress inventory.*

***Required to calculate:***

*(i) Equivalent units of production for each cost.*

*(ii) The Moulding cost per Equivalent units.*

*(iii) Cost of closing work-in-process (WIP) and finished products.* ***(4 Marks)***

*(b) Distinguish between "job costing and batch costing".* ***(3 Marks)***

*(c) A reputed engineering college in Pune has 20 sections with 60 students per section. The college plans a one day pleasure trip around the city for the students during the weekend to places such as zoo, the amusement park and the technological museum. A private transport operator has agreed to provide the required number of buses at a hire charge of ₹ 6,500 per bus per trip. The bus hire charge is inclusive of special permit fees of ₹ 500 per bus per trip paid to the city municipal corporation.*

*Each bus has a maximum seating capacity of 54 persons excluding the driver. Four seats are reserved for the teachers who accompany each bus. The college will employ four teachers for each bus and pay ₹ 500 as daily allowance to each teacher for the trip. No other costs in respect of teachers are relevant to the trip. The following are the other cost estimates:*

| ***Particulars*** | ***Cost per student (₹)*** |
|---|---|
| *Breakfast* | *55* |
| *Lunch* | *120* |
| *Evening tea with snacks* | *40* |
| *Entrance Fee at amusement park* | *Fee entry* |
| *Entrance Fee at the zoo* | *25* |

*As regards the technological museum, the authorities charge block entrance fees for group of students depending upon the number of students in the group as enumerated below:*

| ***Number of students in the group*** | ***Block Entrance Fees (₹)*** |
|---|---|
| *Upto 300* | *2,000* |

| | |
|---|---|
| *301-900* | *3,000* |
| *901 and above* | *3,500* |

*Cost of prizes that would be distributed to the winners in different games being arranged in the amusement park depends upon the number of students in a trip. The cost of prizes to be distributed is:*

| ***Number of students in a trip*** | ***Cost of prizes (₹)*** |
|---|---|
| *Upto - 300* | *2,200* |
| *301- 600* | *2,400* |
| *601 - 900* | *2,400* |
| *901 and above* | *2,500* |

*Assuming that the college hires the requisite number of buses depending upon the number of students in a trip, you are required to:*

*(i) Prepare a flexible budget, estimating the total cost for a trip for the levels of 300, 600, 900 and 1,200 students showing each item of cost separately.*

*(ii) Compute the average cost per student at each of the above levels.*

***(7 Marks)***

**Answer**

**(a) (i) Calculation of equivalent units of production:**

| **Input Details** | **Units** | **Output Particulars** | **Units** | **Equivalent Units** | | | |
|---|---|---|---|---|---|---|---|
| | | | | **Material** | | **Conversion cost** | |
| | | | | **%** | **Units** | **%** | **Units** |
| Unit Introduced | 35,000 | Finished output | 28,000 | 100 | 28,000 | 100 | 28,000 |
| | | Closing W-I-P | 7,000 | 100 | 7,000 | 25 | 1,750 |
| Total | 35,000 | Total | 35,000 | | 35,000 | | 29,750 |

**(ii) Calculation of Moulding cost per equivalent unit:**

| | Direct Material | Conversion costs |
|---|---|---|
| Total cost (₹) | 1,15,500 | 59,500 |
| Equivalent units | 35,000 | 29,750 |
| Cost per equivalent unit (₹) | 3.30 | 2.00 |

**(iii) The cost of closing work in process (WIP):**

| Costs | Equivalent units | Rate (₹) | Total Cost (₹) |
|---|---|---|---|
| Direct Material | 7,000 | 3.30 | 23,100 |
| Conversion Costs | 1,750 | 2.00 | 3,500 |
| Total | | | 26,600 |

**The cost of finished products:**

| Costs | Equivalent units | Rate (₹) | Total Cost (₹) |
|---|---|---|---|
| Direct Material | 28,000 | 3.30 | 92,400 |
| Conversion Costs | 28,000 | 2.00 | 56,000 |
| Total | | | 1,48,400 |

**(b) Difference between job and batch costing**

| Sr. No | Job Costing | Batch Costing |
|---|---|---|
| 1 | Method of costing used for non-standard and non-repetitive products produced as per customer specifications and against specific orders. | Homogeneous products produced in a continuous production flow in lots. |
| 2 | Cost determined for each Job | Cost determined in aggregate for the entire Batch and then arrived at on per unit basis. |
| 3 | Jobs are different from each other and independent of each other. Each Job is unique. | Products produced in a batch are homogeneous and lack of individuality |

**(c) (i) Flexible Budget showing the total cost for a trip:**

| Particulars | No. of Students | | | |
|---|---|---|---|---|
| | **300** | **600** | **900** | **1200** |
| | **(₹)** | **(₹)** | **(₹)** | **(₹)** |
| **Variable Cost** | | | | |
| Breakfast @ ₹ 55 per student | 16,500 | 33,000 | 49,500 | 66,000 |
| Lunch @ ₹ 120 per student | 36,000 | 72,000 | 1,08,000 | 1,44,000 |
| Evening Tea with snacks @ ₹ 40 per student | 12,000 | 24,000 | 36,000 | 48,000 |
| Entrance Fee at amusement park (Free entry) | - | - | - | - |
| Entrance Fee at the zoo @ ₹ 25 per student | 7,500 | 15,000 | 22,500 | 30,000 |
| **Total Variable Costs (A)** | **72,000** | **1,44,000** | **2,16,000** | **2,88,000** |
| **Semi-Variable Cost** | | | | |
| Hire Charges @ ₹ 6,000 per bus | 36,000 | 72,000 | 1,08,000 | 1,44,000 |
| Special Permit Fees @ ₹ 500 per bus | 3,000 | 6,000 | 9,000 | 12,000 |
| DA to Teachers @ ₹ 500 x 4 teachers per bus = ₹ 2,000 per bus | 12,000 | 24,000 | 36,000 | 48,000 |
| Block Entrance Fees at the Technological Museum | 2,000 | 3,000 | 3,000 | 3,500 |

| | | | | |
|---|---|---|---|---|
| Prizes to students | 2,200 | 2,400 | 2,400 | 2,500 |
| **Total Semi-Variable Costs (B)** | **55,200** | **1,07,400** | **1,58,400** | **2,10,000** |
| **Total Cost for a Trip (A+B)** | **1,27,200** | **2,51,400** | **3,74,400** | **4,98,000** |

**Working Note:**

| **Particulars** | | | | |
|---|---|---|---|---|
| **No. of Students** | **300** | **600** | **900** | **1200** |
| No. of Buses required (50 students per bus) | 300/50 = 6 buses | 600/50 = 12 buses | 900/50 = 18 buses | 1200/50 = 24 buses |

**(ii) Average cost per student at each level:**

| **Particulars** | | | | |
|---|---|---|---|---|
| **No. of Students** | **300** | **600** | **900** | **1200** |
| Total Cost (₹) | 1,27,200 | 2,51,400 | 3,74,400 | 4,98,000 |
| Average cost per student (₹) | 424 | 419 | 416 | 415 |

**Question 6**

*(a) In the following independent situations, identify the type of cost and state whether it is relevant/non-relevant in managerial decision making:*

*(i) A Limited owns a commercial space of 1500 square feet and uses the same for its own office accommodation purposes. Similar office is available nearby on rent of ₹ 30,000 per month.*

*(ii) MNC Limited has paid ₹ 1 Lakh as rent for a factory shed which is temporarily closed for the last two months.*

*(iii) Beta Company has paid ₹ 3 Lakhs to a market research agency to find out the market demand of the innovative product developed by the company.*

(iv) *Zen LLP has paid incentive of ₹ 5 Lakhs @ 1% on sales to the salesmen for achieving sales beyond the expected sales of ₹ 25 Lakhs per month per salesman.*

(v) *A start-up company has invested ₹ 50 Lakhs in Project P. The company could have earned interest of ₹ 3 Lakhs by investing the amount in a bank fixed deposit @ 6% per annum.* ***(5 Marks)***

(b) *Cosmos Limited uses activity based costing and accumulates overhead costs in the following cost pools:*

(1) *Human Resources*

(2) *Maintenance of buildings*

(3) *Parts Management*

(4) *Plant security*

(5) *Purchasing*

(6) *Floor manager's salary*

(7) *Quality control*

(8) *Machine set-up*

(9) *Designing the product*

(10) *Receiving Department*

*Classify each cost pool as per cost hierarchy i.e. unit level, batch level, product level or facility level.* ***(5 Marks)***

(c) *Describe briefly the methods for valuation of work-in-process followed in Process Costing.* ***(4 Marks)***

*OR*

(c) *Contemplate the list of functions given below and identify each one of them with the most relevant scope of Cost Accounting:*

(i) *It involves a detailed examination of each cost.*

(ii) *Helps in planning and control, performance appraisal and managerial decision making.*

(iii) *Cost involved in alternative courses of action.*

*(iv) To find out factors responsible for variance in actual costs from the budgeted costs.* ***(4 Marks)***

**Answer**

**(a)**

| Situation | Type of Cost | Relevant / Non-Relevant |
|---|---|---|
| (i) | Opportunity Cost/ Imputed Cost/ Notional Cost | Relevant |
| (ii) | Committed Cost/Shut Down Cost | Non-Relevant |
| (iii) | Sunk Cost | Non-Relevant |
| (iv) | Out of Pocket Cost | Relevant |
| (v) | Opportunity Cost | Relevant |

**(b)**

| S. No. | Cost Pool | Cost Hierarchy Level |
|---|---|---|
| (1) | Human Resources | Facility-level |
| (2) | Maintenance of buildings | Facility-level |
| (3) | Parts Management | Batch-level/Product Level |
| (4) | Plant security | Facility-level |
| (5) | Purchasing | Batch-level |
| (6) | Floor manager's salary | Facility-level |
| (7) | Quality control | Batch-level / Unit Level |
| (8) | Machine set-up | Batch-level |
| (9) | Designing the product | Product-level |
| (10) | Receiving Department | Batch-level |

**(c)** Mainly two methods for valuation of work-in-process are followed:

**(i) First-in-first-out (FIFO) method:** Under this method the units completed and transferred are taken from both opening work-in-process (WIP) and freshly introduced materials/inputs. The cost to complete the opening WIP and other completed units are calculated

separately. The cost of opening WIP is added to cost incurred on completing the incomplete (WIP) units into complete one. The total cost of units completed and transferred is calculated by adding opening WIP cost to cost on freshly introduced inputs. In this method the closing stock of work in process is valued at current cost.

**(ii) Weighted Average (Average) Method:** Under this method, the cost of opening work-in-process and cost of the current period are aggregated and the aggregate cost is divided by output in terms of completed units. The equivalent production in this case consists of work-load already contained in opening work-in-process and work-load of current period.

The main difference between FIFO method and average method is that units of opening work in process and their cost are taken in full under average method while under FIFO method only the remaining work done now is considered.

**OR**

**(c)**

| Function | Scope of Cost Accounting |
|---|---|
| (i) | Cost Control |
| (ii) | Cost Report |
| (iii) | Cost Comparison |
| (iv) | Cost Analysis |