PAPER – 3: COST AND MANAGEMENT ACCOUNTING

QUESTIONS

Material Cost

1. Following details are related to a manufacturing concern:

Re-order Level	1,60,000 units
Economic Order Quality	90,000
Minimum Stock Level	1,00,000 units
Maximum Stock Level	1,90,000 units
Average Lead Time	6 days
Difference between minimum lead time and Maximum lead time	4 days

Calculate:

(i) Maximum consumption per day

(ii) Minimum consumption per day

Employee Cost

2. A skilled worker is paid a guaranteed wage rate of ₹ 120 per hour. The standard time allowed for a job is 6 hour. He took 5 hours to complete the job. He is paid wages under Rowan Incentive Plan.

(i) Calculate his effective hourly rate of earnings under Rowan Incentive Plan.

(ii) If the worker is placed under Halsey Incentive Scheme (50%) and he wants to maintain the same effective hourly rate of earnings, calculate the time in which he should complete the job.

Overheads: Absorption Costing Method

3. The following particulars refer to process used in the treatment of material subsequently incorporated in a component forming part of an electrical appliance:

(i) The original cost of the machine used (Purchased in June 2018) was ₹ 10,00,000. Its estimated life is 10 years, the estimated scrap value at the end of its life is ₹ 10,000, and the estimated working time per year (50 weeks of 44 hours) is 2,200 hours. Out of which machine maintenance etc., is estimated to take up 200 hours.

No other loss of working time expected, setting up time, estimated at 100 hours, is regarded as productive time. (Holiday to be ignored).

(ii) Electricity used by the machine during production is 16 units per hour at cost of a ₹ 7 per unit. No power is consumed during maintenance or setting up.

(iii) The machine required a chemical solution which is replaced at the end of week at a cost of ₹ 2,000 each time.

(iv) The estimated cost of maintenance per year is ₹ 1,20,000.

(v) Two attendants control the operation of machine together with five other identical machines. Their combined weekly wages, insurance and the employer's contribution to holiday pay amount is ₹ 9,000.

(vi) Departmental and general works overhead allocated to this machine for the current year amount to ₹ 20,000.

You are required to calculate the machine hour rate of operating the machine.

Activity Based Costing

4. L Limited manufactures three products P, Q and R which are similar in nature and are usually produced in production runs of 100 units. Product P and R require both machine hours and assembly hours, whereas product Q requires only machine hours. The overheads incurred by the company during the first quarter are as under:

	₹
Machine Department expenses	18,48,000
Assembly Department expenses	6,72,000
Setup costs	90,000
Stores receiving cost	1,20,000
Order processing and dispatch	1,80,000
Inspect and Quality control cost	36,000

The data related to the three products during the period are as under:

	P	Q	R
Units produced and sold	15,000	12,000	18,000
Machine hours worked	30,000 hrs.	48,000 hrs.	54,000 hrs.
Assembly hours worked (direct labour hours)	15,000 hrs.	-	27,000 hrs.
Customers' orders executed (in numbers)	1,250	1,000	1,500
Number of requisitions raised on the stores	40	30	50

Prepare a statement showing details of overhead costs allocated to each product type using activity-based costing.

Cost Sheet

5. A Ltd. produces a single product X. During the month of July 2023, the company has produced 14,560 tonnes of X. The details for the month of July 2023 are as follows:

   (i) Materials consumed ₹ 15,00,000

   (ii) Power consumed in operating production machinery 13,000 Kwh @ ₹ 7 per Kwh

   (iii) Diesels consumed in operating production machinery 1,000 litres @ ₹ 93 per litre

   (iv) Wages & salary paid – ₹ 64,00,000

   (v) Gratuity & leave encashment paid – ₹ 44,20,000

   (vi) Hiring charges paid for Heavy Earth Moving machines (HEMM) engaged in production - ₹ 13,00,000. Hiring charges is paid on the basis of production.

   (vii) Hiring charges paid for cars used for official purpose – ₹ 80,000

   (viii) Reimbursement of diesel cost for the cars – ₹ 20,000

   (ix) The hiring of cars attracts GST under RCM @5% without credit.

   (x) Maintenance cost paid for weighing bridge (used for weighing of final goods at the time of despatch) – ₹ 7,000

   (xi) AMC cost of CCTV installed at weighing bridge (used for weighing of final goods at the time of despatch) and factory premises is ₹ 6,000 and ₹ 18,000 per month respectively.

   (xii) TA/ DA and hotel bill paid for sales manager- ₹ 16,000

   (xiii) The company has 180 employees works for 26 days in a month.

   Required:

   PREPARE a Cost sheet for the month of July 2023.

Cost Accounting System

6. The financial books of a company reveal the following data for the year ended 31st March, 2023:

	(₹)
Opening Stock:	
Finished goods 625 units	1,06,250
Work-in-process	92,000
01.04.2022 to 31.03.2023	
Raw materials consumed	16,80,000
Direct Labour	12,20,000

Factory overheads	8,44,000
Administration overheads (production related)	3,96,000
Dividend paid	2,44,000
Bad Debts	36,000
Selling and Distribution Overheads	1,44,000
Interest received	76,000
Rent received	92,000
Sales 12,615 units	45,60,000
Closing Stock: Finished goods 415 units	91,300
Work-in-process	82,400

The cost records provide as under:

- Factory overheads are absorbed at 70% of direct wages.
- Administration overheads are recovered at 15% of factory cost.
- Selling and distribution overheads are charged at ₹ 6 per unit sold.
- Opening Stock of finished goods is valued at ₹ 240 per unit.
- The company values work-in-process at factory cost for both Financial and Cost Profit Reporting.

Required:

(i) Prepare statements for the year ended 31st March, 2023 showing:
   - the profit as per financial records
   - the profit as per costing records.

(ii) Prepare a statement reconciling the profit as per costing records with the profit as per financial records.

Job Costing

7. SM Motors Ltd. is a manufacturer of auto components. Following are the details of expenses for the year 2022-23:

		(₹)
(i)	Opening Stock of Material	15,00,000
(ii)	Closing Stock of Material	20,00,000
(iii)	Purchase of Material	1,80,50,000
(iv)	Direct Labour	90,50,000
(v)	Factory Overhead	30,80,000
(vi)	Administrative Overhead	20,50,400

During the FY 2023-24, the company has received an order from a car manufacturer where it estimates that the cost of material and labour will be ₹ 80,00,000 and ₹ 40,50,000 respectively. The company charges factory overhead as a percentage of direct labour and administrative overheads as a percentage of factory cost based on previous year's cost.

Cost of delivery of the components at customer's premises is estimated at ₹ 4,50,000.

You are required to:

(i) Calculate the overhead recovery rates based on actual costs for 2022-23.

(ii) Prepare a Job cost sheet for the order received and the price to be quoted if the desired profit is 25% on sales.

Process Costing

8. The following information is furnished by ABC Company for Process - II of its manufacturing activity for the month of April 2023:

(i) Opening Work-in-Progress – Nil

(ii) Units transferred from Process I – 55,000 units at ₹ 3,27,800

(iii) Expenditure debited to Process – II:

Consumables	₹ 1,57,200
Labour	₹ 1,04,000
Overhead	₹ 52,000

(iv) Units transferred to Process III – 51,000 units

(v) Closing WIP – 2,000 units (Degree of completion):

Consumables	80%
Labour	60%
Overhead	60%

(vi) Units scrapped - 2,000 units, scrapped units were sold at ₹ 5 per unit

(vii) Normal loss – 4% of units introduced

You are required to:

(i) Prepare a Statement of Equivalent Production.

(ii) Determine the cost per unit

(iii) Determine the value of Work-in-Process and units transferred to Process – III

Joint Products & By Products

9. A factory producing article A also produces a by-product B which is further processed into finished product. The joint cost of manufacture is given below:

Material	₹ 5,000
Labour	₹ 3,000
Overhead	₹ 2,000
	₹ 10,000

Subsequent cost in ₹ are given below:

	A	B
Material	3,000	1,500
Labour	1,400	1,000
Overhead	600	500
	5,000	3,000

Selling prices are A ₹ 16,000
B ₹ 8,000

Estimated profit on selling prices is 25% for A and 20% for B.

Assume that selling and distribution expenses are in proportion of sales prices. Show how you would apportion joint costs of manufacture and prepare a statement showing cost of production of A and B.

Service Costing

10. P Holiday Resorts offers three types of rooms to its guests, viz deluxe room, super deluxe room and luxury suite. You are required to ascertain the tariff to be charged to the customers for different types of rooms on the basis of following information:

Types of Room	Number of Rooms	Occupancy
Deluxe Room	100	90%
Super Deluxe Room	60	75%
Luxury Suite	40	60%

Rent of 'super deluxe' room is to be fixed at 2 times of 'deluxe room' and that of 'luxury suite' is 3 times of 'deluxe room'. Annual expenses are as follows:

Particulars	Amount (₹ lakhs)
Staff salaries	680.00
Lighting, Heating and Power	300.00

Repairs, Maintenance and Renovation	180.00
Linen	30.00
Laundry charges	24.00
Interior decoration	75.00
Sundries	30.28

An attendant for each room was provided when the room was occupied and he was paid ₹ 500 per day towards wages. Further, depreciation is to be provided on building @ 5% on ₹ 900 lakhs, furniture and fixtures @ 10% on ₹ 90 lakhs and air conditioners @ 10% on ₹ 75 lakhs.

Profit is to be provided @ 25% on total taking and assume 360 days in a year.

Standard Costing

11. The following information has been provided by a company:

Number of units produced and sold	6,000
Standard labour rate per hour	₹ 8
Standard hours required for 6,000 units	-
Actual hours required	17094 hours
Labour efficiency	105.3%
Labour rate variance	₹ 68,376 (A)

You are required to calculate:

(i) Actual labour rate per hour

(ii) Standard hours required for 6,000 units

(iii) Labour Efficiency variance

(iv) Standard labour cost per unit

(v) Actual labour cost per unit.

Marginal Costing

12. (a) A dairy product company manufacturing baby food with a shelf life of one year furnishes the following information:

(i) On 1st April, 2023, the company has an opening stock of 20,000 packets whose variable cost is ₹ 180 per packet.

(ii) In 2022-23, production was 1,20,000 packets and the expected production in 2023-24 is 1,50,000 packets. Expected sales for 2023-24 is 1,60,000 packets.

(iii) In 2022-23, fixed cost per unit was ₹ 60 and it is expected to increase by 10% in 2023-24. The variable cost is expected to increase by 25%. Selling price for 2023-24 has been fixed at ₹ 300 per packet.

You are required to calculate the Break-even volume in units for 2023-24.

(b) The M-Tech Manufacturing Company is presently evaluating two possible processes for the manufacture of a toy. The following information is available:

Particulars	Process A (₹)	Process B (₹)
Variable cost per unit	12	14
Sales price per unit	20	20
Total fixed costs per year	30,00,000	21,00,000
Capacity (in units)	4,30,000	5,00,000
Anticipated sales (Next year, in units)	4,00,000	4,00,000

Suggest:

1. Identify the process which gives more profit.
2. Would you change your answer as given above, if you were informed that the capacities of the two processes are as follows:

   A - 6,00,000 units; B - 5,00,000 units?

Budget and Budgetary Control

13. XY Co. Ltd manufactures two products viz., X and Y and sells them through two divisions, East and West. For the purpose of Sales Budget to the Budget Committee, following information has been made available for the year 2022-23:

Product	Budgeted Sales		Actual Sales	
	East Division	West Division	East Division	West Division
X	400 units at ₹ 9	600 units at ₹ 9	500 units at ₹ 9	700 units at ₹ 9
Y	300 units at ₹ 21	500 units at ₹ 21	200 units at ₹ 21	400 units at ₹ 21

Adequate market studies reveal that product X is popular but underpriced. It is expected that if the price of X is increased by ₹ 1, it will, find a ready market. On the other hand, Y is overpriced and if the price of Y is reduced by ₹ 1 it will have more demand in the market. The company management has agreed for the aforesaid price changes. On the basis of these price changes and the reports of salesmen, following estimates have been prepared by the Divisional Managers:

Percentage increase in sales over budgeted sales

Product	East Division	West Division
X	+ 10%	+ 5%
Y	+ 20%	+ 10%

With the help of intensive advertisement campaign, following additional sales (over and above the above-mentioned estimated sales by Divisional Mangers) are possible:

Product	East Division	West Division
X	60 units	70 units
Y	40 units	50 units

You are required to prepare Sales Budget for 2023-24 after incorporating above estimates and also show the Budgeted Sales and Actual Sales of 2022-23.

Miscellaneous

14. (a) What is cost plus contract? What are its advantages?

(b) Narrate the objectives of cost accounting.

(c) How would you account for idle capacity cost in Cost Accounting?

(d) Explain the treatment of over and under absorption of overheads in cost accounts.

(e) Distinguish between cost allocation and cost absorption.

SUGGESTED HINTS/ANSWERS

1. Difference between Minimum lead time Maximum lead time = 4 days

Max. lead time – Min. lead time = 4 days

Or, Max. lead time = Min. lead time + 4 days.....(i)

Average lead time is given as 6 days i.e.

$\frac{\text{Max. lead time} + \text{Min. lead time}}{2}$ = 6 days..... (ii)

Putting the value of (i) in (ii),

$\frac{\text{Min. lead time} + 4 \text{ days} + \text{Min. lead time}}{2}$ = 6 days

Or, Min. lead time + 4 days + Min. lead time = 12 days

Or, 2 Min. lead time = 8 days

Or, Minimum lead time = $\frac{8\,\text{days}}{2}$ = 4 days

Putting this Minimum lead time value in (i), we get

Maximum lead time = 4 days + 4 days = 8 days

(i) **Maximum consumption per day:**

Re-order level = Max. Re-order period × Maximum Consumption per day

1,60,000 units = 8 days × Maximum Consumption per day

Or, Maximum Consumption per day = $\frac{1,60,000\,\text{units}}{8\,\text{days}}$ = 20,000 units

(ii) **Minimum Consumption per day:**

Maximum Stock Level =

Re-order level + Re-order Quantity – (Min. lead time × Min. Consumption per day)

Or, 1,90,000 units = 1,60,000 units + 90,000 units – (4 days × Min. Consumption per day)

Or, 4 days × Min. Consumption per day = 2,50,000 units – 1,90,000 units

Or, Minimum Consumption per day = $\frac{60,000\ \text{units}}{4\ \text{days}}$ = 15,000 units

2. (i) Effective hourly rate of earnings under Rowan Incentive Plan

Earnings under Rowan Incentive plan =

(Actual time taken × wage rate) + $\frac{\text{Time Saved}}{\text{Time Allowed}}$ × Time taken × Wage rate

= (5 hours × ₹ 120) + $\left(\frac{1\,\text{hour}}{6\,\text{hours}} \times 5\,\text{hours} \times ₹\ 120\right)$

= ₹ 600 + ₹ 100 = ₹ 700

Effective hourly rate = ₹ 700/5 hours = ₹ 140 /hour

(ii) Let time taken = X

∴ Effective hourly rate = $\frac{\text{Earnings under Halsay Scheme}}{\text{Time Taken}}$

Or, Effective hourly rate under Halsey Incentive plan =

$$\frac{(\text{Time taken} \times \text{Rate}) + 50\%\ \text{of Rate} \times (\text{Time allowed} - \text{Time taken})}{\text{TimeTaken}}$$

$$\text{Or, ₹140} = \frac{(X \times ₹120) + 50\% \text{ of } ₹120 \times (6 - X)}{X}$$

Or, 140X = 120X + 360 – 60X

Or, 80X = 360

Or, $X = \frac{360}{80} = 4.5$ hours

Therefore, to earn effective hourly rate of ₹140 under Halsey Incentive Scheme worker has to complete the work in 4.5 hours.

3. Working Notes:

(i) Total Productive hours = Estimated Working hours – Machine Maintenance hours
= 2,200 hours – 200 hours = 2,000 hours

(ii) Depreciation per annum $= \frac{10,00,000 - 10,000}{10} = ₹\ 99,000$

(iii) Chemical solution cost per annum = ₹ 2,000 × 50 weeks = ₹ 1,00,000

(iv) Wages of attendants (per annum) $= \frac{9,000 \times 50 \text{ weeks}}{6 \text{ machines}} = ₹\ 75,000$

Calculation of Machine hour rate

Particulars	Amount (per annum)	Amount (per hour)
A. Standing Charge		
(i) Wages of attendants	75,000	
(ii) Departmental and general works overheads	20,000	
Total Standing Charge	95,000	
Standing Charges per hour		47.50
B. Machine Expense		
(iii) Depreciation	99,000	49.50
(iv) Electricity (7 × 1,900 × 16 units) ÷ 2,000	-	106.40
(v) Chemical solution	1,00,000	50.00
(vi) Maintenance cost	1,20,000	60.00
Machine operating cost per hour (A + B)		313.40

4. Calculation of "Activity Rate"

Cost Pool	Cost (₹) [A]	Cost Driver [B]	Cost Driver Rate (₹) [C] = [A]÷[B]
Machine Department Expenses	18,48,000	Machine Hours (1,32,000 hrs.)	14.00
Assembly Department Expenses	6,72,000	Assembly Hours (42,000 hrs.)	16.00
Setup Cost	90,000	No. of Production Runs (450*)	200.00
Stores Receiving Cost	1,20,000	No. of Requisitions Raised on the Stores (120)	1,000.00
Order Processing and Dispatch	1,80,000	No. of Customers Orders Executed (3,750)	48.00
Inspection and Quality Control Cost	36,000	No. of Production Runs (450*)	80.00
Total (₹)	29,46,000		

**Number of Production Run is 450 (150 + 120 + 180)*

Statement Showing "Overheads Allocation"

Particulars of Cost	Cost Driver	P	Q	R	Total
Machine Department Expenses	Machine Hours	4,20,000 (30,000 × ₹14)	6,72,000 (48,000 × ₹14)	7,56,000 (54,000 × ₹14)	18,48,000
Assembly Department Expenses	Assembly Hours	2,40,000 (15,000 × ₹16)	---	4,32,000 (27,000 × ₹16)	6,72,000
Setup Cost	No. of Production Runs	30,000 (150 × ₹200)	24,000 (120 × ₹200)	36,000 (180 × ₹200)	90,000
Stores Receiving Cost	No. of Requisitions Raised on the Stores	40,000 (40 × ₹1,000)	30,000 (30 × ₹1,000)	50,000 (50 × ₹1,000)	1,20,000
Order Processing and Dispatch	No. of Customers Orders Executed	60,000 (1,250 × ₹48)	48,000 (1,000 × ₹48)	72,000 (1,500 × ₹48)	1,80,000

Inspection and Quality Control Cost	No. of Production Runs	12,000 (150 × ₹80)	9,600 (120 × ₹80)	14,400 (180 × ₹80)	36,000
Overhead (₹)		8,02,000	7,83,600	13,60,400	29,46,000

5. (a) Cost Sheet of A Ltd. for the month of July 2023

Particulars	Amount (₹)	Amount (₹)
Materials consumed		15,00,000
Wages & Salary	64,00,000	
Gratuity & leave encashment	44,20,000	1,08,20,000
Power cost (13,000 kwh × ₹ 7)	91,000	
Diesel cost (1,000 ltr × ₹ 93)	93,000	1,84,000
HEMM hiring charges		13,00,000
Prime Cost		**1,38,04,000**
AMC cost of CCTV installed at factory premises		18,000
Cost of Production/ Cost of Goods Sold		**1,38,22,000**
Hiring charges of cars	80,000	
Reimbursement of diesel cost	20,000	
	1,00,000	
Add: GST @5% on RCM basis	5,000	1,05,000
Maintenance cost for weighing bridge	7,000	
AMC cost of CCTV installed at weigh bridge	6,000	13,000
TA/ DA & hotel bill of sales manager		16,000
Cost of Sales		**1,39,56,000**

6. (i) Statement of Profit as per financial records

(for the year ended March 31, 2023)

	(₹)		(₹)
To Opening stock of Finished Goods	1,06,250	By Sales	45,60,000
To Work-in-process	92,000	By Closing stock of finished Goods	91,300

To Raw materials consumed	16,80,000	By Work-in-Process	82,400
To Direct labour	12,20,000	By Rent received	92,000
To Factory overheads	8,44,000	By Interest received	76,000
To Administration overheads	3,96,000		
To Selling & distribution overheads	1,44,000		
To Dividend paid	2,44,000		
To Bad debts	36,000		
To Profit	1,39,450		
	49,01,700		49,01,700

Statement of Profit as per costing records
(for the year ended March 31,2023)

	(₹)
Sales revenue (A) (12,615 units)	45,60,000
Cost of sales:	
Opening stock (625 units × ₹ 240)	1,50,000
Add: Cost of production of 12,405 units (Refer to working note 2)	43,28,140
Less: Closing stock $\left(\frac{₹43,28,140 \times 415 \text{ units}}{12,405 \text{ units}}\right)$	(1,44,795)
Production cost of goods sold (12,615 units)	43,33,345
Selling & distribution overheads (12,615 units × ₹6)	75,690
Cost of sales: (B)	44,09,035
Profit: {(A) – (B)}	1,50,965

(ii) Statement of Reconciliation

(Reconciling the profit as per costing records with the profit as per financial records)

	(₹)	(₹)
Profit as per Cost Accounts		1,50,965
Add: Administration overheads over absorbed (₹5,64,540 – ₹3,96,000)	1,68,540	
Opening stock overvalued (₹1,50,000 – ₹ 1,06,250)	43,750	
Interest received	76,000	
Rent received	92,000	
Factory overheads over recovered (₹ 8,54,000 – ₹ 8,44,000)	10,000	3,90,290
		5,41,255
Less: Selling & distribution overheads under recovery (₹ 1,44,000 – ₹ 75,690)	68,310	
Closing stock overvalued (₹1,44,795 – ₹ 91,300)	53,495	
Dividend	2,44,000	
Bad debts	36,000	(4,01,805)
Profit as per financial accounts		1,39,450

Working notes:

1. Number of units produced

	Units
Sales	12,615
Add: Closing stock	415
Total	13,030
Less: Opening stock	(625)
Number of units produced	12,405

2. Cost Sheet

	(₹)
Raw materials consumed	16,80,000
Direct labour	12,20,000

Prime cost	29,00,000
Factory overheads (70% of direct wages)	8,54,000
Factory cost	37,54,000
Add: Opening work-in-process	92,000
Less: Closing work-in-process	(82,400)
Factory cost of goods produced	37,63,600
Administration overheads (15% of factory cost)	5,64,540
Cost of production of 12,405 units (Refer to working note 1)	43,28,140
Cost of production per unit: $= \frac{\text{Total Cost of Production}}{\text{No. of units produced}} = \frac{₹43,28,140}{12,405 \text{ units}} = ₹348.90$	

7. (i) Calculation of Overhead Recovery Rate:

Factory Overhead Recovery Rate = $\frac{₹\ 30,80,000}{₹90,50,000} \times 100$ = 34% of Direct labour

Administrative Overhead Recovery Rate = $\frac{₹\ 20,50,400}{₹\ 2,96,80,000} \times 100$ = 6.91% of Factory Cost

Working Note: Calculation of Factory Cost in 2022-23

Particulars	Amount (₹)
Opening Stock of Material	15,00,000
Add: Purchase of Material	1,80,50,000
Less: Closing Stock of Material	(20,00,000)
Material Consumed	1,75,50,000
Direct Labour	90,50,000
Prime Cost	2,66,00,000
Factory Overhead	30,80,000
Factory Cost	2,96,80,000

(ii) Job Cost Sheet for the order received in 2023-24

Particulars	Amount (₹)
Material	80,00,000
Labour	40,50,000
Factory Overhead (34% of ₹ 40,50,000)	13,77,000
Factory Cost	1,34,27,000
Administrative Overhead (6.91% of ₹1,34,27,000)	9,27,806
Cost of delivery	4,50,000
Total Cost	1,48,04,806
Add: Profit @ 25% of Sales or 33.33% of cost	49,34,935
Sales value (Price to be quoted for the order)	1,97,39,741

Hence the price to be quoted is ₹1,97,39,741.

8. (i) Statement of Equivalent Production

Input Details	Units	Output Particulars	Units	Equivalent Production					
				Material- A*		Consumables		Labour & Overheads	
				%	Units	%	Units	%	Units
Units transferred from Process-I	55,000	Units transferred to Process-III	51,000	100	51,000	100	51,000	100	51,000
		Normal loss (4% of 55,000)	2,200	-	-	-	-	-	-
		Closing W-I-P	2,000	100	2,000	80	1,600	60	1,200
		Abnormal Gain	(200)	100	(200)	100	(200)	100	(200)
	55,000		55,000		52,800		52,400		52,000

*Material A represent transferred-in units from process-I

(ii) Determination of Cost per Unit

Particulars	Amount (₹)	Units	Per Unit (₹)
(i) Direct Material (Consumables) :			
Value of units transferred from Process-I	3,27,800		
Less: Value of normal loss (2,200 units × ₹ 5)	(11,000)		

	3,16,800	52,800	6.00
(ii) Consumables added in Process-II	1,57,200	52,400	3.00
(iii) Labour	1,04,000	52,000	2.00
(iii) Overhead	52,000	52,000	1.00
Total Cost per equivalent unit			12.00

(iii) Determination of value of Work-in-Process and units transferred to Process-III

Particulars	Units	Rate (₹)	Amount (₹)
Value of Closing W-I-P:			
Material from Process-I	2,000	6.00	12,000
Consumables	1,600	3.00	4,800
Labour	1,200	2.00	2,400
Overhead	1,200	1.00	1,200
			20,400
Value of units transferred to Process-III	51,000	12.00	6,12,000

9. Apportionment of Joint Costs

Particulars	A (₹)	B (₹)
Selling Price	16,000	8,000
Less: Estimated profit	4,000 (25% of ₹16,000)	1,600 (20% of ₹ 8,000)
Cost of sales	12,000	6,400
Less: Selling & Distribution exp. (Refer working note)	267 (₹ 400 × 2/3)	133 (₹ 400 × 1/3)
Less: Subsequent cost	5,000	3,000
Share of Joint cost	6,733	3,267

So, Joint cost of manufacture is to be distributed to A & B in the ratio of 6733 : 3267

Statement showing Cost of Production of A and B

Elements of cost	Joint Cost		Subsequent Cost		Total Cost	
	A	B	A	B	A	B
Material	3,367	1,633	3,000	1,500	6,367	3,133
Labour	2,020	980	1,400	1,000	3,420	1,980
Overheads	1,346	654	600	500	1,946	1,154
				Cost of production	11,733	6,267

Working Note:

Calculation of Selling and Distribution Expenses

Particulars	(₹)
Total Sales Revenue (₹ 16,000 + ₹ 8,000)	24,000
Less: Estimated Profit (₹ 4,000 + ₹ 1,600)	(5,600)
Cost of Sales	18,400
Less: Cost of production:	
- Joint Costs	(10,000)
- Subsequent costs (₹ 5,000 + ₹ 3,000)	(8,000)
Selling and Distribution expenses (Balancing figure)	400

10. Operating cost statement of P Holiday Resorts

Particulars	Cost per annum (₹ In lakhs)
Staff Salaries	680.00
Room Attendant's Wages (Refer WN-3)	286.20
Lighting, Heating & Power	300.00
Repairs, Maintenance & Renovation	180.00
Linen	30.00
Laundry charges	24.00
Interior Decoration	75.00
Sundries	30.28
Depreciation: (Refer WN-4)	
Building	45.00
Furniture & Fixture	9.00
Air Conditioners	7.50
Total cost for the year	**1666.98**

Computation of profit:

Let ₹ x be the rent for deluxe from.

Equivalent deluxe room days are 90,720 (Refer WN-2)

Total takings = ₹ 90,720x

Profit is 25% of total takings.

Profit = 25% of ₹ 90,720x = ₹ 22,680x

Total takings = Total Cost + Profit

₹ 90,720x = ₹ 16,66,98,000 + ₹ 22,680x

₹ 90,720x - ₹ 22,680x = ₹ 16,66,98,000

₹ 68,040x = ₹ 16,66,98,000

$$X = \frac{₹\,16,66,98,000}{₹\,68,040} = ₹\,2,450$$

Rent to be charged for deluxe room	₹ 2,450
Rent to be charged for super deluxe room = Rent of deluxe room x 2 = ₹ 2,450 x 2	₹ 4,900
Rent to be charged for luxury suite = Rent of Deluxe room x 3 = ₹ 2,450 x 3	₹ 7,350

Working Notes:

1. Computation of Room Occupancy

Type of Room	No. of rooms x no. of days x occupancy %	Room days
Deluxe Room	100 rooms x 360 days x 90% occupancy	32,400
Super Deluxe Room	60 rooms x 360 days x 75% occupancy	16,200
Luxury Suite	40 x 360 days x 60% occupancy	8,640
	Total	57,240

2. Computation of equivalent deluxe room days

Rent of 'super deluxe' room is to be fixed at 2 times of 'deluxe room' and luxury suite' is 3 times of 'deluxe room'. Therefore, equivalent room days would be:

Type of Room	Room days	Equivalent deluxe room days
Deluxe Room	32,400 x 1	32,400
Super Deluxe Room	16,200 x 2	32,400
Luxury Suite	8,640 x 3	25,920
	Total	90,720

3. Computation of room attendant's wages:

Room occupancy days @ ₹ 500 per day

= 57,240 days × ₹ 500 per day = ₹ 2,86,20,000

4. Computation of Depreciation per annum:

Particulars	Cost (₹)	Rate of Depreciation	Depreciation (₹)
Building	900,00,000	5%	45,00,000
Furniture & Fixtures	90,00,000	10%	9,00,000
Air Conditioners	75,00,000	10%	7,50,000

11. SR – Standard labour Rate per Hour

AR – Actual labour rate per hour

SH – Standard Hours

AH – Actual hours

(i) Labour rate Variance = AH (SR – AR)

Or 17,094 (8 – AR) = 68,376(A)

Or 17,094 (8 – AR) = - 68,376

Or 8 – AR = -4

Or AR = ₹12

(ii) Labour Efficiency $= \frac{SH}{AH} \times 100 = 105.3$

$= SH = \frac{AH \times 105.3}{100} = \frac{17,094 \times 105.3}{100}$

= 17,999.982

= SH = 18,000 hours

(iii) Labour Efficiency Variance = SR (SH – AH)

= 8(18,000 – 17,094)

= 8 X 906

= ₹ 7,248(F)

(iv) Standard Labour Cost per Unit $= \frac{18,000 \times 8}{6,000} =$ ₹ 24

(v) Actual Labour Cost Per Unit $= \frac{17,094 \times 12}{6,000} =$ ₹ 34.19

12. (a) Working Notes:

Particulars	2022-23 (₹)	2023-24 (₹)
Fixed Cost	72,00,000 (₹ 60 × 1,20,000 units)	79,20,000 (110% of ₹ 72,00,000)
Variable Cost	180	225 (125% of ₹ 180)

Calculation of Break-even Point (in units):

Since, shelf life of the product is one year only, hence, opening stock is to be sold first.

	(₹)
Total Contribution required to recover total fixed cost in 2023-24 and to reach break-even volume.	79,20,000
Less: Contribution from opening stock {20,000 units × (₹ 300 – ₹ 180)}	24,00,000
Balance Contribution to be recovered	55,20,000

Units to be produced to get balance contribution

$$= \frac{₹\ 55,20,000}{₹300 - ₹225} = 73,600 \text{ packets.}$$

Break-even volume in units for 2023-24

	Packets
From 2023-24 production	73,600
Add: Opening stock from 2022-23	20,000
	93,600

(b) (1) Comparative Profitability Statements

Particulars	Process- A (₹)	Process- B (₹)
Selling Price per unit	20.00	20.00
Less: Variable Cost per unit	12.00	14.00
Contribution per unit	8.00	6.00
Total Contribution	32,00,000 (₹ 8 × 4,00,000)	24,00,000 (₹ 6 × 4,00,000)
Less: Total fixed costs	30,00,000	21,00,000
Profit	2,00,000	3,00,000

Capacity (units)	4,30,000	5,00,000
Total Contribution at full capacity	34,40,000 (₹ 8 × 4,30,000)	30,00,000 (₹ 6 × 5,00,000)
Fixed Cost	30,00,000	21,00,000
Profit	4,40,000	9,00,000

Process - B gives more profit.

(2)

Particulars	Process- A (₹)	Process- B (₹)
*Capacity (units)	6,00,000	5,00,000
Total contribution	48,00,000 (₹ 8 × 6,00,000)	30,00,000 (₹ 6 × 5,00,000)
Fixed Cost	30,00,000	21,00,000
Profit	18,00,000	9,00,000

Process-A be chosen.

***Note: It is assumed that capacity produced equals sales.**

13. Statement Showing Sales Budget for 2023-24

Division	Product X			Product Y			Total
	Qty.	Rate (₹)	Amt. (₹)	Qty.	Rate (₹)	Amt. (₹)	Amt. (₹)
East	500[1]	10	5,000	400[3]	20	8,000	13,000
West	700[2]	10	7,000	600[4]	20	12,000	19,000
Total	1,200		12,000	1,000		20,000	32,000

Workings

1. 400 × 110% + 60 = 500 units
2. 600 × 105% + 70 = 700 units
3. 300 × 120% + 40 = 400 units
4. 500 × 110% + 50 = 600 units

Statement Showing Sales Budget for 2022-23

Division	Product X			Product Y			Total
	Qty.	Rate (₹)	Amt. (₹)	Qty.	Rate (₹)	Amt. (₹)	Amt. (₹)
East	400	9	3,600	300	21	6,300	9,900
West	600	9	5,400	500	21	10,500	15,900
Total	1,000		9,000	800		16,800	25,800

Statement Showing Actual Sales for 2022-23

Division	Product X			Product Y			Total
	Qty.	Rate (₹)	Amt. (₹)	Qty.	Rate (₹)	Amt. (₹)	Amt. (₹)
East	500	9	4,500	200	21	4,200	8,700
West	700	9	6,300	400	21	8,400	14,700
Total	1,200		10,800	600		12,600	23,400

14. (a) **Cost plus contract:** Under cost plus contract, the contract price is ascertained by adding a percentage of profit to the total cost of the work. Such types of contracts are entered into when it is not possible to estimate the contract cost with reasonable accuracy due to unstable condition of material, labour services etc.

Following are the advantages of cost-plus contract:

(i) The contractor is assured of a fixed percentage of profit. There is no risk of incurring any loss on the contract.

(ii) It is useful specially when the work to be done is not definitely fixed at the time of making the estimate.

(iii) Contractee can ensure himself about the 'cost of contract' as he is empowered to examine the books and documents of the contractor to ascertain the veracity of the cost of contract.

(b) The main objectives of introduction of a Cost Accounting System in a manufacturing organization are as follows:

(i) Ascertainment of cost: The main objective of a Cost Accounting system is to ascertain cost for cost objects. Costing may be post completion or continuous but the aim is to arrive at a complete and accurate cost figure to assist the users to compare, control and make various decisions.

(ii) Determination of selling price: Cost Accounting System in a manufacturing organisation enables to determine desired selling price after adding expected profit margin with the cost of the goods manufactured.

(iii) Cost control and Cost reduction: Cost Accounting System equips the cost controller to adhere and control the cost estimate or cost budget and assist them to identify the areas of cost reduction.

(iv) Ascertainment of profit of each activity: Cost Accounting System helps to classify cost on the basis of activity to ascertain activity wise profitability.

(v) Assisting in managerial decision making: Cost Accounting System provides relevant cost information and assists managers to make various decisions.

(c) Idle capacity costs are treated in the following ways in Cost Accounts:

(i) **If the idle capacity cost is due to unavoidable reasons:** A supplementary overhead rate may be used to recover the idle capacity cost. In this case, the costs are charged to the production capacity utilised.

(ii) **If the idle capacity cost is due to avoidable reasons:** Such as faulty planning, etc. the cost should be charged to Costing Profit and Loss Account.

(iii) **If the idle capacity cost is due to trade depression, etc.:** Being abnormal in nature the cost should also be charged to the Costing Profit and Loss Account.

(iv) **If the idle capacity cost is due to seasonal factors**, then the cost should be charged to cost of production by inflating overhead rate.

(d) Treatment of over and under absorption of overheads are:

(i) Writing off to costing P&L A/c: Small difference between the actual and absorbed amount should simply be transferred to costing P&L A/c, if difference is large then investigate the causes and after that abnormal loss/ gain shall be transferred to costing P&L A/c.

(ii) Use of supplementary Rate: Under this method the balance of under and over absorbed overheads may be charged to cost of W.I.P., finished stock and cost of sales proportionately with the help of supplementary rate of overhead.

(iii) Carry Forward to Subsequent Year: Difference should be carried forward in the expectation that next year the position will be automatically corrected.

(e) Distinguish between Cost allocation and Cost absorption:

Cost allocation is the allotment of whole item of cost to a cost centre or a cost unit. In other words, it is the process of identifying, assigning or allowing cost to a cost centre or a cost unit.

Cost absorption is the process of absorbing all indirect costs or overhead costs allocated or apportioned over particular cost center or production department by the units produced.