CA Intermediate (New Syllabus)
Cost & Management Accounting (Paper 3)
November 2019 - Suggested Answers

Question No. 1 is compulsory.
Answer any **four** questions out of the remaining **five** questions.
Working notes should form part of the answer.

Question 1(a) : [5 Marks]

Surekha Limited Produces 4000 Litres of paints on a quarterly basis. Each Litre requires 2 kg of raw material. The cost of placing one order for raw material is ₹ 40 and the purchasing price of raw material is ₹ 50 per kg. The storage cost and interest cost is 2% and 6% per annum respectively. The lead time for procurement of raw material is 15 days.

Calculate Economic Order Quantity and Total Annual Inventory Cost in respect of the above raw material.

Solution 1(a) :

Quarterly production is 4,000 litres. It means, annual production is 16,000 litres.

Annual consumption of RM = 16,000 litres x 2 kg = 32,000 kg.

Carrying cost per unit p.a.　　　= Purchase Price per kg. x Carrying cost %

$$= ₹ 50 \text{ per kg. x (2\% + 6\%)}$$

$$= ₹ 50 \text{ per kg. x 8\%} = ₹ 4 \text{ per kg.}$$

$$\text{EOQ} = \sqrt{\frac{2 \times \text{Annual Usage} \times \text{Ordering Cost Per Order}}{\text{Cost of carrying inventory per unit p.a.}}}$$

$$\text{EOQ} = \sqrt{\frac{2 \times 32000 \times \text{Rs.} 40}{\text{Rs.} 4}} = 800 \text{ kg.}$$

Total Inventory Management Cost :

Particulars	Calculations	Amount (Rs.)
Carrying Cost p.a.	800/2 x 4	1,600
Ordering Cost p.a.	32,000/800 x Rs. 40	1,600
Total Cost p.a.		3,200

Note :　ICAI has considered the purchase cost of raw material also in its answer. In my opinion, purchase cost doesn't form part of inventory cost. Hence, I have excluded the purchase cost from the above statement.

Question 1(b) : [5 Marks]

The following data presented by the supervisor of a factory for a Job.

	₹ per unit
Direct Material	120
Direct Wages @ ₹ 4 per hour	60
(Departments A-4 hrs., B-7 hrs., C-2 hrs & D-2 hrs.)	
Chargeable Expenses	20

Total	**200**

Analysis of the Profit and Loss Account for the year ended
31st March, 2019

	₹	₹			₹
Material		2,00,000	Sales		4,30,000
Direct Wages					
Dept.A	12,000				
Dept.B	8,000				
Dept.C	10,000				
Dept.D	20,000	50,000			
Special Store items		6,000			
Overheads					
Dept. A	12,000				
Dept. B	6,000				
Dept. C	9,000				
Dept. D	17,000	44,000			
Gross profit c/d		1,30,000			
		4,30,000			**4,30,000**
Selling Expenses		90,000	Gross Profit b/d		1,30,000
Net Profit		40,000			
		1,30,000			**1,30,000**

It is also to be noted that average hourly rates for all the four departments are similar.

Required :

(i) Prepare a Job Cost Sheet.

(ii) Calculate the entire revised cost using the above figures as the base.

(iii) Add 20% profit on selling price to determine the selling price.

Solution 1(b) :

Student Note : We need to first calculate overhead recovery rates, using the data given in the P&L account. Then we can use these rates to prepare job cost sheet. Overheads given in the Trading Account are assumed to be Factory Overheads.

Factory OH Recovery Rate	= % of Direct Wages	= OH / Wages x 100
Department A	= 12,000 / 12,000 x 100	= 100% of wages
Department B	= 6,000 / 8,000 x 100	= 75% of wages
Department C	= 9,000 / 10,000 x 100	= 90% of wages
Department D	= 17,000 / 20,000 x 100	= 85% of wages
Selling OH Recovery Rate	= % of Factory Cost	= OH / Factory Cost x 100
	= 90,000 / 3,00,000 x 100	= 30% of factory cost

Note : Factory Cost = 2,00,000 + 50,000 + 6,000 + 44,000 = 3,00,000

Job Cost Sheet :

Particulars	₹/unit	₹/unit
Direct Material		120
Direct Wages :		
Dept. A [4 hours @ ₹ 4 per hour]	16	
Dept. B [7 hours @ ₹ 4 per hour]	28	
Dept. C [2 hours @ ₹ 4 per hour]	8	
Dept. D [2 hours @ ₹ 4 per hour]	8	60
Chargeable expenses		20
Prime cost		200
Factory Overheads :		
Dept. A [₹ 16 x 100%]	16.00	
Dept. B [₹ 28 x 75%]	21.00	
Dept. C [₹ 8 x 90%]	7.20	
Dept. D [₹ 8 x 85%]	6.80	51
Factory cost		251.00
Selling OH [₹ 251 x 30%]		75.30
Total cost		326.30
Add : Profit @ 20% on sales price i.e. 25% of cost price		81.58
Selling price		407.88

Question 1(c) : [5 Marks]

A Factory produces two products, 'A' and 'B' from a single process. The joint processing costs during a particular month are :

Direct Material	₹ 30,000
Direct Labour	₹ 9,600
Variable Overheads	₹ 12,000
Fixed Overheads	₹ 32,000

Sales : A – 100 units @ ₹ 600 per unit; B – 120 units @ ₹ 200 per unit.

Apportion joints costs on the basis of :
(i)   Physical Quantity of each product.
(ii)   Contribution Margin method, and
(iii)   Determine Profit or Loss under both the methods.

Solution 1(c) :

Statement of joint cost :

Particulars	₹
Direct Material	30,000
Add : Direct Labour	9,600
Add : Variable Overheads	12,000
∴ Total Variable Joint Cost	51,600
Add : Fixed Overheads	32,000
∴ Total Joint Cost	83,600

(i) Apportionment of joint cost on physical quantity basis and profitability :

Particulars	Product 'A'	Product 'B'	Total
(a) Quantity (units)	100	120	220
(b) Sales Price per unit	600	200	---
(c) Sale Value [a x b]	60,000	24,000	84,000
(d) Total joint cost apportioned on the basis of (a)	38,000	45,600	83,600
(e) Profit / (Loss) [c - d]	22,000	(21,600)	400

(ii) Apportionment of joint cost using contribution margin method and profitability :

Particulars	Product 'A'	Product 'B'	Total
(a) Sale Value [WN 1(c) above]	60,000	24,000	84,000
(b) Variable joint cost apportioned on the basis of Physical Quantity i.e. 100 : 120	23,455	28,145	51,600
(c) Contribution margin [a - b]	36,545	(4,145)	32,400
(d) Fixed joint cost apportion in the ratio of (c)	*32,000	0	32,000
(e) Profit / (Loss) [c - d]	4,545	(4,145)	400

*Note : In absence of any positive contribution earned by 'B', the entire fixed cost is charged to Product 'A'.

Question 1(d) : [5 Marks]

When volume is 4,000 units, average cost is ₹ 3.75 per unit. When volume is 5,000 units, average cost is ₹ 3.50 per unit. The Break-Even point is 6,000 units.

Calculate :-
(i)   Variable Cost per unit
(ii)   Fixed Cost and
(iii)   Profit Volume Ratio

Solution 1(d) :

Total cost at 4,000 units = 4,000 units x ₹ 3.75 per unit = ₹ 15,000
Total cost at 5,000 units = 5,000 units x ₹ 3.50 per unit = ₹ 17,500

(i)   Variable Cost per unit   = Change in Cost / change in output
                                    = Rs. (17,500 - 15,000)   = ₹ 2.50 per unit
                                      (5,000 - 4,000) units

(ii)   Fixed Cost = Total Cost - Variable Cost
        At 4,000 units, Fixed Cost = 15,000 - (2.50 x 4,000 units) = ₹ 5,000

(iii)   Profit Volume Ratio
        At BEP, Total Cost = Total Revenue
        Hence, at BEP 6,000 units, total cost and revenue shall be -
          = (2.50 x 6,000 units) + ₹ 5,000 = ₹ 20,000
        Hence, sales price per unit shall be = ₹ 20,000 / 6,000 units = ₹ 3.333 per unit
        Contribution per unit   = Sales Price - Variable cost
                                   = 3.333 - 2.50 = ₹ 0.833 per unit
        P/V Ratio   = Contribution / Sales x 100
                                   = 0.833 / 3.333 x 100   = 25% (approx)

Question 2(a) : [10 Marks]

PQR Ltd. has decided to analyse the profitability of it's five new customers. It buys soft drink bottles in cases at ₹ 45 per case and sells them to retail customers at a list price of ₹ 54 per case. The data pertaining to five customers are given below:

Particulars	Customers				
	A	B	C	D	E
Number of Cases Sold	9360	14200	62000	38000	9800
List Selling Price ₹	54	54	54	54	54
Actual Selling Price ₹	54	53.40	49	50.20	48.60
Number of Purchase Orders	30	50	60	50	60
Number of Customer visits	4	6	12	4	6
Number of Deliveries	20	60	120	80	40
Kilometers travelled per delivery	40	12	10	20	60
Number of expediate Deliveries	0	0	0	0	2

It's five activities and their cost drivers are :

Activity	Cost Driver
Order taking	₹ 200 per purchase order
Customer visits	₹ 300 per each visit
Deliveries	₹ 4.00 per delivery km travelled
Product Handling	₹ 2.00 per case sold
Expedited deliveries	₹ 100 per each such delivery

You are required to :
(i) Compute the customer level operating income of each of five retail customers by using the Cost Driver rates.
(ii) Examine the results to give your comments on Customer 'D' in comparison with Customer 'C' and on Customer 'E' in comparison with Customer 'A'.

Solution 2(a) :

(i) Calculation of Customer Level Operating Income:

Particulars	Customers				
	A	**B**	**C**	**D**	**E**
(a) No. of Cases sold	9,360	14,200	62,000	38,000	9,800
(b) List Selling price (Rs.)	54	54	54	54	54
(c) Actual Selling Price (Rs.)	54	53.40	49	50.20	48.60
(d) Actual Sales Revenue [a x c]	5,05,440	7,58,280	30,38,000	19,07,600	4,76,280
(e) Number of Purchase orders	30	50	60	50	60
(f) Order taking cost [e x 200]	6,000	10,000	12,000	10,000	12,000
(g) Number of Customer visits	4	6	12	4	6
(h) Customer visit cost [g x 300]	1,200	1,800	3,600	1,200	1,800
(i) Number of Deliveries	20	60	120	80	40
(j) Kilometers travelled / delivery	40	12	10	20	60
(k) Cost of delivery [i x j x 4]	3,200	2,880	4,800	6,400	9,600
(l) Product handling cost [a x 2]	18,720	28,400	1,24,000	76,000	19,600
(m) No. of expedited deliveries	0	0	0	0	2
(n) Expedited delivery cost [m x 100]	0	0	0	0	200
(o) Cost of goods sold [a x 45]	4,21,200	6,39,000	27,90,000	17,10,000	4,41,000
(p) Gross Profit [d – o]	84,240	1,19,280	2,48,000	1,97,600	35,280
(q) Other overheads cost [f + h + k + l + n]	29,120	43,080	1,44,400	93,600	43,200
(r) Operating Profit [p – q]	55,120	76,200	1,03,600	1,04,000	(7,920)

(ii) Comments :

Customer D in comparison with Customer C : Operating income of Customer D is more than of Customer C, despite having lower sales volume (38,000 units) in comparison to Customer C (62,000 units). Customer C receives a higher percent of discount i.e. 9.26% (₹ 5) while Customer D receive a discount of 7.04% (₹ 3.80). Though the gross margin of customer C (₹ 2,48,000) is more than Customer D (₹ 1,97,600) but total overhead cost of C (₹ 1,44,400) is more in comparison to Customer D (₹ 93,600). As a result, operating income is more in case of Customer D.

Customer E in comparison with Customer A : Customer E is not profitable while Customer A is profitable. Customer E receives a discount of 10% (₹ 5.4) while Customer A doesn't receive any discount. Sales Volume of Customer A and E is almost same. However, total cost of overheads of E is far more (₹ 43,200) in comparison to Customer A (₹ 29,120). This has resulted in occurrence of loss in case of Customer E.

Question 2(b) : [10 Marks]

ABS Enterprises produces a product and adopts the policy to recover factory overheads applying blanket rate based on machine hours. The cost records of the concern reveal following information :

Budgeted production overheads	₹ 10,35,000
Budgeted machine hours	90,000
Actual machine hours worked	45,000
Actual production overheads	₹ 8,80,000
Actual production overheads include –	
Paid to worker as per court's award	₹ 50,000
Wages paid for strike period	₹ 38,000
Stores written off	₹ 22,000
Expenses of previous year booked in current year	₹ 18,500
Production of Finished goods	30,000 units
Sale of finished goods	27,000 units

The analysis of cost information reveals that 1/3 of the under absorption of overheads was due to defective production planning and the balance was attributable to increase in costs.

   You are required :

(i) To find out the amount of under absorbed production overheads.

(ii) To give the ways of treating it in Cost Accounts.

(iii) To apportion the under absorbed overheads over the items.

Solution 2(b) :

Calculation of budgeted overhead recovery rate :

Blanket Rate = Budgeted OH / Budgeted Machine hours

= ₹ 10,35,000 / 90,000 = ₹ 11.50 per machine hour

(i) Calculation of Under absorbed production overheads :

Particulars	Amount (₹)
Actual production overheads	8,80,000
Less : Abnormal items written off to Costing P&L Account : Paid to worker as per court's award Wages paid for strike period Stores written off	50,000 38,000 22,000
Less : Expenses of previous year booked in current year to be rectified in the books of accounts	18,500
∴ Balance overheads	7,51,500
Less : Overheads absorbed [45,000 hours @ ₹ 11.50 per hr.]	5,17,500
∴ Under absorption of overheads	2,34,000

(ii) Accounting treatment of under absorbed production overheads :

Out of the under absorbed overheads of ₹ 2,34,000; 1/3rd are due to defective planning. It is an abnormal item and hence to be transferred to Costing P&L Account.
The amount to be transferred to P&L A/c = 1/3 x 2,34,000 = ₹ 78,000.
The remaining 2/3rd amount is due to cost increase and hence it should be adjusted using supplementary rate method over the goods produced.

(iii) Apportionment using Supplementary Rate :

Supplementary Rate = $\frac{(2/3 \times 2,34,000)}{(30,000 \text{ units})}$ = ₹ 5.20 per unit

To be charged to -

Stock of finished goods (3,000 units @ ₹ 5.20 per unit) = ₹ 15,600
Cost of goods sold (27,000 units @ ₹ 5.20 per unit) = ₹ 1,40,400

Question 3(a) : [10 Marks]

A hotel is being run in a Hill station with 200 single rooms. The hotel offers concessional rates during six off-season months in a year. During this period, half of the full room rent is charged. The management's profit margin is targeted at 20% of the room rent. The following are the cost estimates and other details for the year ending 31st March, 2019 :

(i) Occupancy during the season is 80% while in the off-season it is 40%.
(ii) Total investment in the hotel is ₹ 300 lakhs of which 80% relates to Buildings and the balance to Furniture and other Equipment.
(iii) Room attendants are paid ₹ 15 per room per day on the basis of occupancy of rooms in a month.
(iv) Expenses :
- Staff salary (excluding that of room attendants) — ₹ 8,00,000
- Repairs to Buildings — ₹ 3,00,000
- Laundry Charges — ₹ 1,40,000
- Interior Charges — ₹ 2,50,000

- Miscellaneous Expenses   ₹ 2,00,200

(v)   Annual Depreciation is to be provided on Buildings @ 5% and 15% on Furniture and other Equipments on straight line method.
(vi)   Monthly lighting charges are ₹ 110, except in four months in winter when it is ₹ 30 per room and this cost is on the basis of full occupancy for a month.

You are required to work out the room rent chargeable per day both during the season and the off-season months using the foregoing information.

(Assume a month to be of 30 days and winter season to be considered as part of off-season).

Solution 3(a) :

Important workings :

Particulars	Full Season	Off Season	Total
1. Calculation of Room Days Occupied :			
(a) No. of rooms in the hotel	200	200	
(b) No. of days [6 months x 30 days]	180	180	
(c) Occupancy Ratio	80%	40%	
(d) Room days occupied [a x b x c]	28,800	14,400	
(e) Weightage for rent	100%	50%	
(f) Equivalent room days [d x e]	28,800	7,200	36,000
2. Room Attendant's Salary :			
[WN 1(d) x ₹ 15 per room per day]	4,32,000	2,16,000	6,48,000
3. Lighting Charges :	**Full Season**	**Off Season**	**Off Season**
(a) Winter / Non-winter	Non-winter	Non-winter	Winter
(b) No. of Months	6	2	4
(c) No. of Rooms	200	200	200
(d) Occupancy Ratio	80%	40%	40%
(e) No. of room months occupied [b x c x d]	960	160	320
(f) Rate per room per month if occupied	₹ 110	₹ 110	₹ 30
(g) Lighting charges [e x f]	1,05,600	17,600	9,600

Cost Sheet for the Year :

Particulars	₹
Room attendants salary [WN 2 above]	6,48,000
Lighting charges [WN 3(g) above] [1,05,600 + 17,600 + 9,600]	1,32,800
Staff salary (excluding that of room attendants)	8,00,000
Repairs to Buildings	3,00,000
Laundry Charges	1,40,000
Interior Charges	2,50,000
Miscellaneous Expenses	2,00,200
Depreciation on Building [300 lakhs x 80% x 5%]	12,00,000
Depreciation on Furniture & Equipment [300 lakhs x 20% x 15%]	9,00,000
∴ Total cost per annum	45,71,000
Add : Profit @ 20% of room rent i.e. 25% of cost	11,42,750
∴ Total room rent i.e. revenue per annum	57,13,750

Calculation of Room Rent Chargeable Per Day :

Rent per equivalent room day = Total Revenue / Equivalent Room Days
= 57,13,750 / 36,000 = ₹ 158.72 (approx)
Rent per room per day for full season period = ₹ 158.72 x 100% = ₹ 158.72 (approx)
Rent per room per day for off season period = ₹ 158.72 x 50% = ₹ 79.36 (approx)

Question 3(b) : [10 Marks]

XYZ a manufacturing firm, has revealed following information for September, 2019:

	1st September (₹)	30th September (₹)
Raw Materials	2,42,000	2,92,000
Works-in-progress	2,00,000	5,00,000

The firm incurred following expenses for a target production of 1,00,000 units during the month:

	₹
Consumable Stores and spares of factory	3,50,000
Research and development cost for process improvements	2,50,000
Quality control cost	2,00,000
Packing cost (secondary) per unit of goods sold	2
Lease rent of production asset	2,00,000
Administrative Expenses (General)	2,24,000
Selling and distribution Expenses	4,13,000
Finished goods (opening)	Nil
Finished goods (closing)	5000 units
Defective output which is 4% of targeted production, realizes	₹ 61 per unit

Closing stock is valued at cost of production (excluding administrative expenses)
Cost of goods sold, excluding administrative expenses amounts to ₹ 78,26,000.
Direct employees cost is ½ of the cost of material consumed.
Selling price of the output is ₹ 110 per unit.

You are required to :
(i)   Calculate the value of material purchased.
(ii)   Prepare cost sheet showing the profit earned by the firm.

Solution 3(b) :

Cost Sheet of XYZ for the month of September : [Bottom to Top Approach]

Particulars	Amount (₹)	Amount (₹)
Direct Material Consumed :		
Raw materials purchased (Bal. Fig.)	52,50,000	
Add: Opening stock	2,42,000	
Less: Closing stock	(2,92,000)	52,00,000
Wages paid [78,00,000 x 0.50 / 1.50] (see working below)		26,00,000
PRIME COST		78,00,000
Add : Factory Overheads :		
Consumable Stores and spares of factory	3,50,000	
Lease rent of production asset	2,00,000	5,50,000
GROSS FACTORY COST		83,50,000
Add : Opening value of W-I-P		2,00,000
Less : Closing value of W-I-P		(5,00,000)
NET FACTORY COST OF FG		80,50,000
Quality control cost		2,00,000
Research & development cost		2,50,000
Less: Amount realised by selling defective output [1,00,000 units x 4% x ₹ 61 per unit]		(2,44,000)
COST OF PRODUCTION		82,56,000
Add : Opening stock of Finished goods		NIL
Less : Closing stock of Finished goods [78,26,000 / 91,000 units x 5,000 units]		(4,30,000)
COST OF GOODS SOLD (Given)		78,26,000
Add : Selling & Distribution expenses	4,13,000	
Add : Administrative expenses (General)	2,24,000	
Add : Secondary packing [91,000 units x ₹ 2]	1,82,000	8,19,000
COST OF SALES		86,45,000
Sales Revenue [91,000 units x ₹ 110]		1,00,10,000
PROFIT (Balancing Figure)		13,65,000

Working Notes :

1. Calculation of No. of units sold :

Particulars	Units
Target Production	1,00,000
Less : Defective production @ 4% of 1,00,000	(4,000)
∴ Good units of FG produced	96,000
Add : Opening stock of FG	NIL
Less : Closing stock of FG	(5,000)
∴ Finished goods sold during the month	91,000

2. Procedure to solve this question :

- First prepare the blank format of cost sheet with relevant items.
- Write down the figures already given in the question.
- Start with COGS figure given in the question.
- Do the forward working from COGS and you will reach up to profits.
- Now do the reverse working from COGS. While doing the reverse calculations, the items which are originally added in the cost sheet, will get deducted and the items which are deducted in the cost sheet, will get added. By this way, you will reach up to Prime Cost.
- Prime cost of ₹ 78,00,000 consists of Material + Labour. Let's assume material consumed as ₹ 'X' and Wages as ₹ '0.5X'. Hence, 1.5X = 78,00,000 and X = 52,00,000 and 0.5X = 26,00,000.
- Once we get the cost of material consumed, then again we do the reverse calculations to get the cost of material purchased as a balancing figure.

Question 4(a) : [10 Marks]

Zico Ltd. has its factory at two locations viz. Nasik and Satara. Rowan plan is used at Nasik factory and Halsey plan at Satara factory. Standard time and basic rate of wages are same for a job which is similar and is carried out on similar machinery. Normal working hours is 8 hours per day in a 5 day week.

Job in Nasik factory is completed in 32 hours while at Satara factory it has taken 30 hours. Conversion costs at Nasik and Satara are ₹ 5,408 and ₹ 4,950 respectively. Overheads account for ₹ 25 per hour.

Required :

(i) To find out the normal wage; and

(ii) To compare the respective conversion costs.

Solution 4(a) :

Let us assume normal wage rate = Rs. 'X' per hour

Particulars	Nasik	Satara
(a) Time allowed (8 hours x 5 days)	40 hours	40 hours
(b) Time taken	32 hours	30 hours
(c) Time saved (a – b)	8 hours	10 hours
(d) Incentive scheme	Rowan	Halsey
(e) Total wages (see below)	₹ 38.40X	₹ 35X
(f) Overheads (b x Rs. 25)	₹ 800	₹ 750
(g) Conversion Cost (e + f)	₹ 38.4X + 800	₹ 35X + 750
(h) Conversion Cost (given)	₹ 5,408	₹ 4,950

Wages at Nasik under the Rowan plan = (Hours worked x Rate per hour) +

[Time Saved / Time allowed x Hours worked x Rate per hour)]

= 32X + [(8 / 40) x 32X]   = 32X + 6.4X   = 38.40X

Wages under Halsey scheme at Satara = (Hours worked x Rate per hour) +

50% of [Time Saved x Rate per hour]

= (30 hours x Rs. X) + (50% x 10 hrs. x Rs. X)

= 30X + 5X = Rs. 35X

(i) Calculation of normal wage rate :

Equating conversion cost as calculated in (g) & (h) above, we get -

Location Nasik   5,408 = 38.4X + 800

Location Satara   4,950 = 35X + 750

If we solve the above two equations simultaneously,

We get,   X   = Rs. 120 per hour i.e. normal wage rate

(ii) Comparative Statement of Conversion Cost :

Particulars	Nasik	Satara
(a) Total wages @ Rs. 120 per hr.	₹ 4,608	₹ 4,200
(b) Overheads @ Rs. 25 per hr.	₹ 800	₹ 750
(c) Conversion Cost (a + b)	₹ 5,408	₹ 4,950

Question 4(b) : [10 Marks]

A product passes through two distinct processes before completion. Following information are available in this respect :

	Process-1	Process-2
Raw materials used	10,000 units	---
Raw material cost (per unit)	₹ 75	---
Transfer to next process/Finished goods	9,000 units	8,200 units
Normal loss (on inputs)	5%	10%
Direct Wages	₹ 3,00,000	₹ 5,60,000
Direct expenses	50% of direct wages	65% of direct wages
Manufacturing overheads	25% of direct wages	15% of direct wages
Realisable value of scrap (per unit)	₹ 13.50	₹ 145

8,000 units of finished goods were sold at a profit of 15% on cost.
There was no opening and closing stock of work-in-progress.

Prepare :

(i) Process-1 and Process-2 Account
(ii) Finished goods Account
(iii) Normal Loss Account
(iv) Abnormal Loss Account
(v) Abnormal Gain Account

Solution 4(b) :

Process I A/c

Particulars	Qty	Rate	Amount	Particulars	Qty	Rate	Amount
To Input Material	10,000	75	7,50,000	By Normal Loss a/c	500	13.50	6,750
To Direct Wages			3,00,000	(5% of 10,000)			
To Direct Exp.			1,50,000	By Abnormal loss a/c	500	133.5	66,750
[50% x 3,00,000]				By Output transferred	9,000	133.5	12,01,500
To Manufacturing			75,000	to Process II a/c			
OH [25% of 3L]							
Total	10,000		12,75,000	Total	10,000		12,75,000

Calculation of Cost p.u. = $\dfrac{\text{Total process cost – Realisable value of normal scrap}}{\text{Input Qty. – Normal loss Qty.}}$

Process I   = $\dfrac{\text{Rs. 12,75,000 – 6,750}}{\text{10,000 – 500 units}}$

    = Rs. 12,68,250 / 9,500 units = Rs. 133.50 per unit

Process II A/c

Particulars	Qty	Rate	Amount	Particulars	Qty	Rate	Amount
To Process I A/c	9,000	133.5	12,01,500	By Normal Loss a/c (10% of 9,000)	900	145	1,30,500
To Direct Labour			5,60,000				
To Direct Exp. [65% x 5.6L]			3,64,000	By Output transferred to FG a/c	8,200	256.67	21,04,667
To Prod. OH [15% x 5.6L]			84,000				
To, Abnormal Gain A/c (Bal. Fig.)	100	256.67	25,667				
Total	9,100		22,35,167	Total	9,100		22,35,167

Cost per unit = Rs. 22,09,500 – 1,30,500
              ──────────────────────
                 9,000 – 900 units

              = Rs. 20,79,000 / 8,100 units = Rs. 256.67 per unit (approx)

Finished Goods A/c

Particulars	Qty	Rate	Amount	Particulars	Qty	Rate	Amount
To Process II A/c	8,200	256.67	21,04,667	By Sales *(256.67 + 15%)	8,000	*295.17	23,61,360
To Costing P&L A/c [Profit - Bal. Fig.]			3,08,027	By Closing Stock	200	256.67	51,334
Total	8,200		24,12,694	Total	8,200		24,12,694

Normal Loss A/c

Particulars	Qty	Rate	Amount	Particulars	Qty	Rate	Amount
To Process I A/c	500	13.50	6,750	By Scrap sale (I)	500	13.50	6,750
				By Scrap sale (II)	800	145	1,16,000
To Process II A/c	900	145	1,30,500	By Abnormal Gain	100	145	14,500
Total	1,400		1,37,250	Total	1,400		1,37,250

Abnormal Loss A/c

Particulars	Qty	Rate	Amount	Particulars	Qty	Rate	Amount
To Process I A/c	500	133.5	66,750	By Scrap sale (I)	500	13.50	6,750
				By Costing Profit & Loss A/c (Bal. Fig.)			60,000
Total	500		66,750	Total	500		66,750

Abnormal Gain A/c

Particulars	Qty	Rate	Amount	Particulars	Qty	Rate	Amount
To Normal Loss A/c To Costing Profit and Loss A/c (Bal. Fig.)	100	145	14,500 11,167	By Process II A/c	100	256.67	25,667
Total	100		25,667	Total	100		25,667

Question 5(a) : [10 Marks]

PJ Ltd. manufactures hockey sticks. It sells the products at ₹ 500 each and makes a profit of ₹ 125 on each stick. The Company is producing 5,000 sticks annually by using 50% of its machinery capacity.

The cost of each stick is as under :
Direct Material   ₹ 150
Direct Wages   ₹ 50
Works Overhead   ₹ 125 (50% fixed)
Selling Expenses   ₹ 50 (25% variable)

The anticipation for the next year is that cost will go up as under :
Fixed Charges   10%
Direct Wages   20%
Direct Material   5%

There will not be any change in selling price.
There is an additional order for 2,000 sticks in the next year.
Calculate the lowest price that can be quoted so that the Company can earn the same profit as it earned in the current year ?

Solution 5(a) :
Calculation of Present Cost & Revised Cost for next year :

Particulars	Present Costs		Increase in cost	Revised Costs	
	Variable cost Per unit	Total Fixed cost		Variable cost Per unit	Total Fixed cost
(a) Direct Material	150.00	---	5%	157.50	---
(b) Direct Wages	50.00	---	20%	60.00	---
(c) Works Overhead	62.50 [125 x 50%]	3,12,500 [62.5 x 5000]	FC by 10%	62.50 [Same]	3,43,750
(d) Selling Overhead	12.50 [50 x 25%]	1,87,500 [37.5 x 5000]	FC by 10%	12.50 [Same]	2,06,250
(e) Total Cost [a to d]	275.00	5,00,000		292.50	5,50,000

Calculation of lowest price for the additional order :

Particulars	₹
Revised total variable cost [7,000 units x 292.50] Add : Revised total fixed cost	20,47,500 5,50,000
∴ Total cost for next year	25,97,500
Add : Present profit to be maintained [5,000 units x ₹ 125 per unit]	6,25,000
∴ Desired total sales for next year	32,22,500
Less : Present Sales [5,000 units @ ₹ 500 per unit]	25,00,000
∴ Balance sales required from additional order	7,22,500
∴ Lowest sales price [7,22,500 / 2,000 units]	361.25

Question 5(b) : [10 Marks]

The standard cost of a chemical mixture is as follows :

    60% of Material A @ ₹ 50 per kg.

    40% of Material B @ ₹ 60 per kg.

A standard loss of 25% on output is expected in production.

The cost records for a period has shown the following usage.

    540 kg of Material A @ ₹ 60 per kg.

    260 kg. of Material B @ ₹ 50 per kg.

The quantity processed was 680 kilograms of good product.

From the above information, calculate -

(i)   Material Cost Variance

(ii)   Material Price Variance

(iii)   Material Usage Variance

(iv)   Material Mix Variance

(v)   Material Yield Variance

Solution 5(b) :

Calculation of standard quantity required for actual output :

Quantity processed = Actual output = 680 kg.

Standard loss is 25% on **OUTPUT** (please note it is not calculated on input)

Total standard quantity required for actual output = 680 + 25% = 850 kg.

Standard Qty. in Std. Ratio 60 : 40 shall be :

    Material A = (60% x 850) = 510 kg.

    Material B = (40% x 850) = 340 kg.

1) **Material Cost Variance** = (Std. Qty. x Std. Price) - (Actual Qty. x Actual Price)

A : (510 kg. x Rs. 50) - (540 kg. x Rs. 60) = 6,900 (A)

B : (340 kg. x Rs. 60) - (260 kg. x Rs. 50) = 7,400 (F)

Total : 500 (F)

2) **Material Price Variance** = Actual Qty. consumed x (Std. price - Actual price)

A : 540 kgs. (Rs. 50 - Rs. 60) = 5,400 (A)

B : 260 kgs. (Rs. 60 - Rs. 50) = 2,600 (F)

Total 2,800 (A)

3) **Material Usage Variance** = Std. Price x (Std. qty. - Actual qty.)

A : Rs. 50 (510 kg. - 540 kg) = 1,500 (A)

B : Rs. 60 (340 kg. - 260 kg) = 4,800 (F)

Total 3,300 (F)

4) **Material Mix Variance** = Std. Price (Std. Mix - Actual mix)

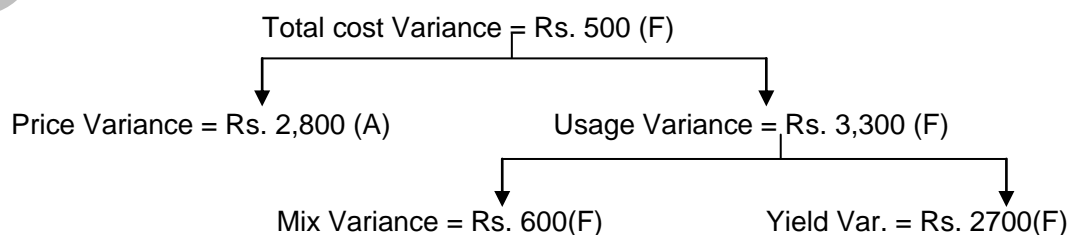| Material	Std. price Rs.	Calculation	Std. mix Kg.	Actual mix Kg.	Variance Rs.
A	50	800 x 60%	480	540	3,000 (A)
B	60	800 x 40%	320	260	3,600 (F)
Total			800	800	600 (F)

* Actual Mix = Actual Qty. Consumed and
** Std. Mix = Actual total quantity consumed, revised in std. mixing proportion 60 : 40.

5) **Sub-usage Variance (also known as Yield Variance)** :

= Std. Price x (Std. Qty. - Std. mix)

A : Rs. 50 x (510 kg. - 480 kg.) = Rs. 1,500 (F)

B : Rs. 60 x (340 kg. - 320 kg.) = Rs. 1,200 (F)

Total Rs. 2,700 (F)

Analysis of Material Cost Variances

Total cost Variance = Rs. 500 (F)

Price Variance = Rs. 2,800 (A)   Usage Variance = Rs. 3,300 (F)

Mix Variance = Rs. 600(F)   Yield Var. = Rs. 2700(F)

Question 6 : [5 Marks each x 4 Ques.]

Answer any **four** of the following :

(a) Describe Composite Cost unit as used in Service Costing and discuss the ways of computing it.

(b) Journalise the following transactions in cost books under Non-Integrated system of Accounting.

(i)	Credit Purchase of Material	₹ 27,000
(ii)	Manufacturing overhead charged to Production	₹ 6,000
(iii)	Selling and Distribution overheads recovered from Sales	₹ 4,000
(iv)	Indirect wages incurred	₹ 8,000
(v)	Material returned from production to stores	₹ 9,000

(c) Define Inventory Control and give its objectives.
List down the basis to be adopted for Inventory Control.

(d) Mention the Cost Unit of the following Industries :

(i) Electricity
(ii) Automobile
(iii) Cement
(iv) Steel
(v) Gas
(vi) Brick Making
(vii) Coal Mining
(viii) Engineering
(ix) Professional Services
(x) Hospital

(e) Define Zero Base Budgeting and mention its various stages.

Solution 6 :

(a) **Composite Cost Unit:** Sometime two measurement units are combined together to know the cost of service or operation. These are called composite cost units. For example, a public transportation undertaking would measure the operating cost per passenger per kilometre.

Examples of Composite units are Ton- km., Quintal- km, Passenger-km., Patient-day etc.

Composite unit may be computed in two ways:

(i) Absolute (Weighted Average) basis.

(ii) Commercial (Simple Average) basis.

(b) **Journal entries are as follows:**

	Particulars		Dr. (₹)	Cr. (₹)
(i)	Stores Ledger Control A/c………………………	Dr.	27,000	
	To Cost Ledger Control A/c			27,000
(ii)	Work-in-Process Control A/c...........................	Dr.	6,000	
	To Manufacturing Overhead Control A/c			6,000
(iii)	Cost of Sales A/c………………………………	Dr.	4,000	
	To Selling & Dist. Overhead Control A/c			4,000
(iv)	(1) Wage Control A/c……………………	Dr.	8,000	
	To Cost Ledger Control A/c			8,000
	(2) Manufacturing Overhead Control A/c………	Dr.	8,000	
	To Wages Control A/c			8,000
	OR			
	Manufacturing Overhead Control A/c……………	Dr.	8,000	
	To Cost Ledger Control A/c			8,000
(v)	Stores Ledger Control A/c ………………………	Dr.	9,000	
	To Work-in-Process Control A/c			9,000

*Cost Ledger Control A/c is also known as General Ledger Adjustment A/c.

(c) **Inventory Control:** The Chartered Institute of Management Accountants (CIMA) **defines** Inventory Control as "The function of ensuring that sufficient goods are retained in stock to meet all requirements without carrying unnecessarily large stocks."

The **objective** of inventory control is to make a balance between sufficient stock and over- stock. The stock maintained should be sufficient to meet the production requirements so that uninterrupted production flow can be maintained. Insufficient stock not only pause the production but also cause a loss of revenue and goodwill. On the other hand, Inventory requires some funds for purchase, storage, maintenance of materials with a risk of obsolescence, pilferage etc. A trade-off between Stock-out and Over-stocking is required. The management may employ various methods of Inventory control to have a balance. Management may adopt the following **basis (ways)** for Inventory control :

(i)   Physical Verification of Inventory - Periodical or Perpetual

(ii)   ABC Analysis of inventory control

(iii)   Inventory Levels : Reorder level, Maximum level, Minimum level etc.

(iv)   Economic Ordering Quantity

(v)   Ratio Analysis : Inventory Turnover Ratio, Stock holding period, input : output ratio etc.

(d) **Cost Unit of Industries:**

S. No.	Industry	Cost Unit Basis
(i)	Electricity	Kilowatt-hour (kWh)
(ii)	Automobile	Number
(iii)	Cement	Ton / Per bag etc.
(iv)	Steel	Ton
(v)	Gas	Cubic feet
(vi)	Brick-making	1,000 bricks
(vii)	Coal mining	Ton
(viii)	Engineering	Contract, job
(ix)	Professional services	Chargeable hour, job, contract
(x)	Hospitals	Patient day / Bed day

(e) **Zero-based Budgeting:** (ZBB) is an emergent form of budgeting which arises to overcome the limitations of incremental (traditional) budgeting system. Zero- based Budgeting (ZBB) is **defined** as 'a method of budgeting which requires each cost element to be specifically justified, although the activities to which the budget relates are being undertaken for the first time, without approval, the budget allowance is zero'.

ZBB is an activity based budgeting system where budgets are prepared for each activities rather than functional department. Justification in the form of cost benefits for the activity is required to be given. The activities are then evaluated and prioritized by the management on the basis of factors like synchronisation with organisational objectives, availability of funds, regulatory requirement etc.

ZBB is suitable for both corporate and non-corporate entities. In case of non-corporate entities like Government department, local bodies, not for profit organisations, where these entities need to justify the benefits of expenditures on social programmes like mid-day meal, installation of street lights, provision of drinking water etc.

ZBB involves the following stages:

(i) Identification and description of Decision packages

(ii) Evaluation of Decision packages

(iii) Ranking (Prioritisation) of the Decision packages

(iv) Allocation of resources

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