CA Intermediate (New Syllabus)
Cost & Management Accounting (Paper 3)
November 2020 - 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]

G Ltd. manufactures a single product for which market demand exists for additional quantity. Present sales of ₹ 6,00,000 utilises only 60% capacity of the plant. The following data are available :

(1) Selling Price : ₹ 100 per unit

(2) Variable Cost : ₹ 30 per unit

(3) Semi-variable expenses : ₹ 60,000 fixed + ₹ 5 per unit

(4) Fixed expenses : ₹ 1,00,000 at present level, estimated to increase by 25% at and above 80% capacity.

You are required to prepare a flexible budget so as to arrive at the operating profit at 60%, 80% and 100% levels.

Solution 1(a) :

Flexible Budget :

Particulars	**60% Capacity**	**80% Capacity**	**100% Capacity**
(a) Sales Revenue (₹)	6,00,000	8,00,000	10,00,000
(b) No. of units sold [a / 100]	6,000	8,000	10,000
(c) Variable Costs [₹ 30 p.u. x b]	1,80,000	2,40,000	3,00,000
(d) Semi variable expenses [(₹ 5 p.u. x b) + 60,000]	90,000	1,00,000	1,10,000
(e) Fixed expenses	1,00,000 (Given)	1,25,000 [1,00,000 + 25%]	1,25,000 [1,00,000 + 25%]
(f) Total cost [c + d + e]	3,70,000	4,65,000	5,35,000
(g) Operating Profit [a - f]	2,30,000	3,35,000	4,65,000

Question 1(b) : [5 Marks]

Moon Ltd. produces products 'X', 'Y' and 'Z' and has decided to analyse it's production mix in respect of these three products - 'X', 'Y' and 'Z'.

You have the following information :

	X	Y	Z
Direct Materials ₹ (per unit)	160	120	80
Variable Overheads ₹ (per unit)	8	20	12

Direct Labour :-

Departments	Rate per hour (₹)	Hours per unit X	Hours per unit Y	Hours per unit Z
Department - A	4	6	10	5
Department - B	8	6	15	11

From the current budget further details are as below :

Particulars	X	Y	Z
Annual Production at present (in Units)	10,000	12,000	20,000
Estimated Selling Price per unit (₹)	312	400	240
Sales departments estimate of possible sales in the coming year (in units)	12,000	16,000	24,000

There is a constraints on supply of labour in Department 'A' and its manpower cannot be increased beyond its present level.

Required –

(i) Identify the best possible product mix of Moon Ltd.

(ii) Calculate the total contribution from the best possible product mix.

Solution 1(b) :

Student Note : We need to first calculate total available labour hours in Dept. A at present production. Then we need to calculate contribution per unit and per labour hour to decide the ranking. Based on this ranking, we need to allocate the resources to find out the best product mix. Lastly, we will get total contribution at such best possible product mix. This question is worth 10 marks, but ICAI asked it for 5 marks.

Working Notes :

(1) Calculation of total labour hours in Dept. A at present production :

= (10,000 units x 6 hrs.) + (12,000 units x 10 hrs.) + (20,000 units x 5 hrs.)

= 60,000 + 1,20,000 + 1,00,000

= 2,80,000 labour hours

(2) Statement of Contribution & Ranking :

Particulars	X	Y	Z
(a) Estimated Selling Price per unit (₹)	312	400	240
(b) Direct Materials ₹ (per unit)	160	120	80
(c) Variable Overheads ₹ (per unit)	8	20	12
(d) Direct Labour - (hours per unit x rate/hr.)			
Dept. A (₹ per unit)	24	40	20
Dept. B (₹ per unit)	48	120	88
(e) Total Variable Cost per unit [b + c + d]	240	300	200
(f) Contribution (₹ per unit) [a - e]	72	100	40
(g) Labour Hours per unit - Dept. A	6	10	5
(h) Contribution per hour (₹) [f / g]	12	10	8
(i) Ranking based on (h) above	I	II	III

(i) Calculation of Best Possible Product Mix :

Particulars	No. of Units	Hours per unit	Total Hours	Balance Hours
Total available labour hours in Dept. A [Refer WN 1]				2,80,000
Less : Used for possible sales demand of highest rank Product 'X'	12,000	6	72,000	2,08,000
Less : Used for possible sales demand of second rank Product 'Y'	16,000	10	1,60,000	48,000
Balance hours used for Product 'Z'	9,600	5	48,000	NIL

(ii) Calculation of Total Contribution from Best Possible Product Mix :

Particulars / Product Mix	No. of Units	Contribution per unit (₹)	Total Contribution (₹)
Product 'X'	12,000	72	8,64,000
Product 'Y'	16,000	100	16,00,000
Product 'Z'	9,600	40	3,84,000
Total Contribution			28,48,000

Question 1(c) : [5 Marks]

A company's plant processes 6,750 units of a raw material in a month to produce two products 'M' and 'N'.

The process yield is as under :-

Product M	80%
Product N	12%
Process Loss	8%

The cost of raw material is ₹ 80 per unit.

Processing cost is ₹ 2,25,000 of which labour cost is accounted for 66%. Labour is chargeable to products 'M' and 'N' in the ratio of 100 : 80.

Prepare a Comprehensive Cost Statement for each product showing :

(i) Apportionment of Joint cost among products 'M' and 'N' and
(ii) Total cost of the products 'M' and 'N'.

Solution 1(c) :

Apportionment of Joint Cost and calculation of Total Cost :

Particulars	Ratio of apportionment	Product 'M' (₹)	Product 'N' (₹)	Total (₹)
(a) Cost of raw material [6,750 units x ₹ 80]	80 : 12	4,69,565	70,435	5,40,000
(b) Cost of labour [66% x ₹ 2,25,000]	100 : 80	82,500	66,000	1,48,500
(c) Overheads [₹ 2,25,000 - 66%]	100 : 80	42,500	34,000	76,500
(d) Total joint cost [a + b + c]		5,94,565	1,70,435	7,65,000

Assumptions :

- In absence of specific information about apportionment of material cost, it is apportioned in the ratio of product yield.
- Process loss is assumed to be normal loss and hence it will be borne by Products 'M' and 'N'.
- In absence of specific information about apportionment of remaining processing cost (i.e. overheads), it is apportioned in the ratio of labour cost i.e. 100 : 80. Alternatively, it may also be apportioned in the ratio of output (i.e. yield) i.e. 80 : 12.

Question 1(d) : [5 Marks]

W Limited undertook a contract for ₹ 5,00,000 on 1st July, 2019. On 30th June, 2020 when the accounts were closed, the following details about the contract were gathered :

	Amount (₹)
Material Purchased	1,00,000
Wages paid	45,000
General Expenses	10,000
Material on hand (30-6-2020)	25,000
Wages accrued (30-6-2020)	5,000
Work Certified	2,00,000
Cash Received	1,50,000
Work uncertified	15,000

The above contract contained "Escalation clause" which read as follows :

"In the event of increase in the prices of materials and rates of wages by more than 5%, the contract price would be increased accordingly by 25% of the rise in the cost of materials and wages beyond 5% in each case."

It was found that since the date of signing the agreement, the prices of materials and wage rates increased by 25%. The value of the work certified does not take into account the effect of the above clause.

Calculate the 'Value of Work Certified' after taking the effect of 'Escalation Clause' as on 30th June, 2020.

Solution 1(d) :

Cost of material consumed (1,00,000 - 25,000) =	75,000
Cost of labour (45,000 + 5,000) =	50,000
Total cost eligible for escalation clause=	1,25,000

Total increase in cost since signing the agreement = 1,25,000 x 25/125 = ₹ 25,000

Increase in cost beyond 5% = 1,25,000 x 20/125 = ₹ 20,000

Increase in Contract Price = 25% of ₹ 20,000 = ₹ 5,000

Revised Value of Work Certified = ₹ 2,00,000 + ₹ 5,000 = ₹ 2,05,000

Important Note : With due respect to ICAI, I feel their answer is wrong. In the ICAI answer, they have considered only (40% of 5,000) = Rs. 2,000 in calculation of value of work certified. ICAI has assumed that the increase due to escalation clause of Rs. 5,000 is for the whole contract and hence, only 40% is considered now. Whereas, the data used for calculation of the impact of escalation is given only up to 30.06.2020 and not for the future period.

Question 2(a) : [10 Marks]

X Ltd. manufactures two types of pens 'Super Pen' and 'Normal Pen'. The Cost data for the year ended 30th September, 2019 is as follows :

Particulars	(₹)
Direct Materials	8,00,000
Direct Wages	4,48,000
Production Overheads	1,92,000
Total	14,40,000

It is further ascertained that :

(1) Direct materials cost in Super Pen was twice as much of direct material in Normal Pen.
(2) Direct wages for Normal Pen were 60% of those for Super Pen.
(3) Production overhead per unit was at same rate for both the types.
(4) Administration overhead was 200% of direct labour for each.
(5) Selling cost was ₹ 1 per Super pen.
(6) Production and sales during the year were as follows :

Production		Sales	
Product	No. of Units	Product	No. of Units
Super Pen	40,000	Super Pen	36,000
Normal Pen	1,20,000		

(7) Selling price was ₹ 30 per unit for Super Pen.

Prepare a Cost Sheet for 'Super Pen' showing :

(i) Cost per unit and Total Cost

(ii) Profit per unit and Total Profit

Solution 2(a) :

Student Note : One very big omission has happened while framing the question and that is : while mentioning the proportion of direct material cost and direct wages cost for the two pens, it is not clearly mentioned whether the proportion is given for **per unit** cost or for **total cost**. It can lead to interpretational dispute and difference of opinion. A student should clearly write an assumption in such case, while solving this question.

One more thing should have made clear, that is the type of administration overheads. Whether it is related to production or it is general in nature. It will decide the position of Admin. OH in the cost sheet.

My view : In my view, the proportion given for DM & DL might be on per unit basis, because these are prime costs and are variable in nature. I am assuming Admin OH as related to production, because it is absorbed on the basis of direct labour, which is related to production activity.

Working Notes :

(1) Apportionment of Direct Material Cost :

Let's assume that material cost per unit of Super Pen is '2X' and Normal Pen is 'X'

∴ (40,000 units x 2X) + (1,20,000 units x X) = ₹ 8,00,000

∴ 80,000X + 1,20,000X = ₹ 8,00,000

∴ 2,00,000X = ₹ 8,00,000 Hence, X = ₹ 4

Hence, Material Cost per unit of Super Pen (2X) = ₹ 8

(2) Apportionment of Direct Labour Cost :

Let's assume that labour cost per unit of Super Pen is 'Y' and Normal Pen is '0.6Y'

∴ (40,000 units x Y) + (1,20,000 units x 0.6Y) = ₹ 4,48,000

∴ 40,000Y + 72,000Y = ₹ 4,48,000

∴ 1,12,000Y = ₹ 4,48,000 Hence, Y = ₹ 4

Hence, Labour Cost per unit of Super Pen (Y) = ₹ 4

(3) Apportionment of Production Overheads :

Let's assume that production overhead per unit of Super Pen and Normal Pen is 'Z' each.

∴ (40,000 units x Z) + (1,20,000 units x Z) = ₹ 1,92,000

∴ 40,000Z + 1,20,000Z = ₹ 1,92,000

∴ 1,60,000Z = ₹ 1,92,000 Hence, Z = ₹ 1.20

Hence, Production OH per unit of Super Pen (Z) = ₹ 1.20

Cost Sheet for 'Super Pen' :

Particulars	Per unit (₹)	No. of units	Total (₹)
Direct Material (WN 1)	8.00	40,000	3,20,000
Direct wages (WN 2)	4.00	40,000	1,60,000
Production overhead (WN 3)	1.20	40,000	48,000
∴ Factory cost	13.20	40,000	5,28,000
Add : Administration OH (200% of 4)	8.00	40,000	3,20,000
∴ Cost of Production	21.20	40,000	8,48,000
Less : Closing stock of FG	21.20	(4,000)	(84,800)
∴ Cost of goods sold	21.20	36,000	7,63,200
Add : Selling cost (Given)	1.00	36,000	36,000
∴ Cost of Sales	22.20	36,000	7,99,200
Sales Revenue	30.00	36,000	10,80,000
∴ Profit	7.80	36,000	2,80,800

Question 2(b) : [10 Marks]

TEE Ltd. Is a manufacturing company having three production departments 'P', 'Q' and 'R' and two service departments 'X' and 'Y' details pertaining to which are as under :

Particulars	P	Q	R	X	Y
Direct Wages (₹)	5,000	1,500	4,500	2,000	800
Working hours	13,191	7,598	14,995	-	-
Value of machine (₹)	1,00,000	80,000	1,00,000	20,000	50,000
H. P. of machines	100	80	100	20	50
Light Points (Nos.)	20	10	15	5	10
Floor Space (Sq. ft)	2,000	2,500	3,500	1,000	1,000

The expenses are as follows :

Particulars	(₹)
Rent and Rates	10,000
General Lighting	600
Indirect Wages	3,450
Power	3,500
Depreciation on Machines	70,000
Sundries (apportionment on the basis of direct wages)	13,800

The expenses of Service Departments are allocated as under :

	P	Q	R	X	Y
X	45%	15%	30%	-	10%
Y	35%	25%	30%	10%	-

Product 'A' is processed for manufacture in Departments P, Q and R for 6, 5 and 2 hours respectively.

Direct Costs of Product A are :

Direct Material cost is ₹ 65 per unit and Direct labour cost is ₹ 40 per unit.

You are required to :

(i) Prepare a statement showing distribution of overheads among the production and service departments.

(ii) Calculate recovery rate per hour of each production department after redistributing the service departments costs.

(iii) Find out the Total Cost of a 'Product A'.

Solution 2(b) :

Student Note : As the question is silent, you may use simultaneous equation method or repeated distribution method for re-apportionment of OH. I have used repeated distribution method below, for solving this question.

(i) Overhead Distribution Summary and Calculation of Overhead Recovery Rate :

Particulars	**Total (₹)**	**Basis for Apportionment**	**Production Depts.**			**Service Depts.**	
			P	**Q**	**R**	**X**	**Y**
Allocation :							
Direct Wages	2,800	Direct	--	--	--	2,000	800
Apportionment :							
Rent and Rates	10,000	Floor Space [20:25:35:10:10]	2,000	2,500	3,500	1,000	1,000
General Lighting	600	Light Points [20:10:15:5:10]	200	100	150	50	100
Indirect Wages	3,450	Direct Wages [50:15:45:20:8]	1,250	375	1,125	500	200
Power	3,500	HP of M/c [10:8:10:2:5]	1,000	800	1,000	200	500
Depreciation on Machines	70,000	Value of M/c [10:8:10:2:5]	20,000	16,000	20,000	4,000	10,000
Sundries	13,800	Direct Wages [50:15:45:20:8]	5,000	1,500	4,500	2,000	800
Total Overheads	1,04,150		29,450	21,275	30,275	9,750	13,400
Reapportionment:							
Service Dept. X	--	45 : 15 : 30 : 10	4,388	1,462	2,925	(9,750)	975
Service Dept. Y	--	35 : 25 : 30 : 10	5,031	3,594	4,313	1,437	(14,375)
Service Dept. X	--	45 : 15 : 30 : 10	647	215	431	(1,437)	144
Service Dept. Y	--	35 : 25 : 30 : 10	50	36	43	15	(144)
Service Dept. X	--	45 : 15 : 30 : 10	8	2	5	(15)	--
Total Overheads	1,04,150	Say (A)	39,574	26,584	37,992	NIL	NIL
Working hours		Say (B)	13,191	7,598	14,995		
Rate per Hour		A / B	3.00	3.4988	2.5336		

(ii) Calculation of total cost of a Product 'A' :

Particulars	**(₹ / unit)**	**(₹ / unit)**
Direct material cost (given)		65.00
Direct labour cost (given)		40.00
∴ Prime cost per unit		105.00
Production Overheads : Dept. P (6 hours x ₹ 3.00 per hour) Dept. Q (5 hours x ₹ 3.4988 per hour) Dept. R (2 hours x ₹ 2.5336 per hour)	 18.00 17.49 5.07	 40.56
∴ Total cost per unit		145.56

Question 3(a) : [10 Marks]

ABC Ltd. has furnished the following information regarding the overheads for the month of June 2020 :

(i)	Fixed Overhead Cost variance	₹ 2,800 (Adverse)
(ii)	Fixed Overhead Volume Variance	₹ 2,000 (Adverse)
(iii)	Budgeted Hours for June, 2020	2,400 hours
(iv)	Budgeted Overheads for June, 2020	₹ 12,000
(v)	Actual rate of recovery of overheads	₹ 8 per Hour

From the above given information, calculate :

(1) Fixed Overhead Expenditure Variance
(2) Actual Overheads Incurred
(3) Actual Hours for Actual Production
(4) Fixed Overhead Capacity Variance
(5) Standard hours for Actual Production
(6) Fixed Overhead Efficiency Variance

Solution 3(a) :

Student Note : We have to use balancing figure technique to calculate the answers.

(1) Fixed Overhead Expenditure Variance

= Fixed Overhead Cost variance - Fixed Overhead Volume Variance

= ₹ 2,800 (Adverse) - ₹ 2,000 (Adverse) = ₹ 800 (Adverse)

(2) Actual Overheads Incurred

Fixed Overhead Expenditure Variance = Budgeted OH - Actual OH

₹ 800 (Adverse) = 12,000 - Actual OH

- 800 = 12,000 - Actual OH Hence, Actual Overheads = ₹ 12,800

(3) Actual Hours for Actual Production

Actual rate of recovery of overheads = ₹ 8 per Hour

Actual OH / Actual Hours = ₹ 8 per Hour

12,800 / 8 = Actual Hours

Hence, Actual Hours = 1,600 hours

(4) Fixed Overhead Capacity Variance

= SRR/hr. x (Budgeted hours - Actual hours)

= (₹ 12,000 / 2,400 hrs.) x (2,400 - 1,600)

= ₹ 5 x 800 hours worked less

= ₹ 4,000 (A) - due to under utilisation of capacity

(5) Fixed Overhead Efficiency Variance

= Volume Variance - Capacity Variance

= ₹ 2,000 (Adverse) - ₹ 4,000 (A) = ₹ 2,000 (F)

(6) Standard hours for Actual Production

Efficiency variance = SRR/hr. x (Standard hours - Actual hours)

₹ 2,000 (F) = ₹ 5 x (SH - 1,600)

2,000 / 5 = SH - 1,600

400 + 1,600 = SH Hence, Standard hours for actual production = 2,000

Question 3(b) : [10 Marks]

An Automobile company purchases 27,000 spare parts for its annual requirements. The cost per order is ₹ 240 and the annual carrying cost of average inventory is 12.5%. Each spare part costs ₹ 50.

A present, the order size is 3,000 spare parts.

(Assume that number of days in a year = 360 days)

Find out :

(i) How much the company's cost would be saved by opting EOQ model?

(ii) The Re-order point under EOQ model if lead time is 12 days.

(iii) How frequently should orders for procurement be placed under EOQ model?

Solution 3(b) :

(i) Calculation of Economic Order Quantity :

$$EOQ = \sqrt{\frac{2 \times \text{Annual consumption} \times \text{Ordering cost per order}}{\text{Carrying cost per unit p.a.}}}$$

$$EOQ = \sqrt{\frac{2 \times 27{,}000 \text{ units} \times \text{Rs. } 240 \text{ per order}}{(50 \times 12.5\%) = 6.25 \text{ per unit p.a.}}}$$

= 1,440 units.

(ii) Calculation of the savings arising from switching over to EOQ :

Particulars	Present System	EOQ System
(a) Order size (units)	3,000	1,440
(b) No. of orders p.a. (27,000 / a)	9	18.75
(c) Ordering cost p.a. [b x 240] (Rs.)	2,160	4,500
(d) Carrying cost p.a. [a / 2 x 6.25] (Rs.)	9,375	4,500
(e) Total cost p.a. [c + d] (Rs.)	11,535	9,000
(f) Savings from switching over (Rs.)		2,535

(iii) Calculation of Re-order Point :

Consumption per day = 27,000 / 360 days = 75 units per day

Re-order Point = 75 units per day x 12 days = 900 units

(iv) Calculation of frequency of orders under EOQ model :

= No. of days in a year / No. of order p.a.

= 360 days / 18.75 orders = 19.2 days (approx)

Question 4(a) : [10 Marks]

Following details are related to the work done in Process-I by ABC Ltd, during the month of May 2019 :

Opening work in process (3,000 units)	₹
Materials	1,80,500
Labour	32,400
Overheads	90,000
Materials introduced in Process-I (42,000 units)	36,04,000
Labour	4,50,000
Overheads	15,18,000

Units Scrapped : 4,800 units

Degree of completion : Materials : 100%

Labour & Overhead : 70%

Closing Work-in-Progress : 4,200 units

Degree of Completion : Materials : 100%

Labour & Overhead : 50%

Units finished and transferred to Process II : 36,000 units

Normal Loss : 4% of total input including opening work-in-process

Scrapped units fetch ₹ 62.50 per piece.

Prepare :

(i) Statement of equivalent production
(ii) Statement of cost per equivalent unit
(iii) Process-I A/c
(iv) Normal Loss Account and
(v) Abnormal Loss Account

Solution 4(a) :

Student Note : If you observe the data given for Opening WIP carefully, you will notice that % completion of op. wip is not given. However, break up of cost of op. wip is given. Hence, this question can be solved only using 'Weighted Average Method'.

1. Statement of equivalent production for Process I for May, 2019 :

Particulars	Total units	Equivalent Production			
		Material Cost		Labour & OH	
		%	Units	%	Units
Input:					
- Opening W.I.P.	3,000				
- Introduced	42,000				
Total	45,000				
Output:					
a) Completed units	36,000	100%	36,000	100%	36,000
b) Normal loss [4% x 45,000]	1,800	--	--	--	--
c) Abnormal loss [4,800 - 1,800]	3,000	100%	3,000	70%	2,100
d) Closing WIP	4,200	100%	4,200	50%	2,100
Total	45,000		43,200		40,200

2. Statement of Cost :

Particulars	Material	Labour	Overheads	Total (Rs.)
Cost of opening W.I.P	1,80,500	32,400	90,000	3,02,900
Add: Cost incurred during the Month	36,04,000	4,50,000	15,18,000	55,72,000
Less : Realisable value of normal loss [1,800 units x ₹ 62.50]	(1,12,500)	--	--	(1,12,500)
∴ Net Total Cost	36,72,000	4,82,400	16,08,000	63,000
(÷) Equivalent units	43,200	40,200	40,200	---
Cost per Equivalent Unit	85	12	40	137

3. Allocation of Cost :

Particulars	Rs.	Rs.
a) Completed units: (36,000 units x Rs. 137 p.u.)		49,32,000
b) Abnormal loss :		
Material (3,000 units x Rs. 85 p.u.)	2,55,000	
Wages (2,100 units x Rs. 12 p.u.)	25,200	
Overheads (2,100 units x Rs. 40 p.u.)	84,000	3,64,200
c) Closing W.I.P.		
Material (4,200 units x Rs. 85 p.u.)	3,57,000	
Wages (2,100 units x Rs. 12 p.u.)	25,200	
Overheads (2,100 units x Rs. 40 p.u.)	84,000	4,66,200
Total		57,62,400

4. Process 'I' A/c

Particulars	Qty.	Amount	Particulars	Qty.	Amount
To, Opening W.I.P	3,000	3,02,900	By normal loss	1,800	1,12,500
To, Input Material	42,000	36,04,000	By Completed units tran. to II	36,000	49,32,000
To, Labour		4,50,000			
To, Overheads		15,18,000	By Abnormal loss	3,000	3,64,200
			By, Closing W.I.P	4,200	4,66,200
Total	45,000	58,74,900	Total	45,000	58,74,900

5. Normal Loss A/c

Particulars	Qty.	Amount	Particulars	Qty.	Amount
To Process I A/c	1,800	1,12,500	By GLA A/c i.e. sale of scrap	1,800	1,12,500
Total	1,800	1,12,500	Total	1,800	1,12,500

6. Abnormal Loss A/c

Particulars	Qty.	Amount	Particulars	Qty.	Amount
To Process I A/c	3,000	3,64,200	By GLA A/c i.e. sale of scrap @ 62.50	3,000	1,87,500
			By Costing P&L A/c [Net loss]		1,76,700
Total	3,000	3,64,200	Total	3,000	3,64,200

Question 4(b) : [6 Marks]

Following are the particulars of two workers 'R' and 'S' for a month :

Particulars	R	S
(i) Basic Wages (₹)	15,000	30,000
(ii) Dearness Allowance	50%	50%
(iii) Contribution to EPF (on basic wages)	7%	7.5%
(iv) Contribution to ESI (on basic Wages)	2%	2%
(v) Overtime (hours)	20	-

The normal working hours for the month are 200 hrs. Overtime is paid at double the total of normal wages and dearness allowance. Employer's contribution to State Insurance and Provident Fund are at equal rates with employees' contributions.

Both workers were employed on jobs A, B and C in the following proportions :

Particulars	A	B	C
R	75%	10%	15%
S	40%	20%	40%

Overtime was done on Job 'A'.

You are required to :

(i) Calculate ordinary wage rate per hour of 'R' and 'S'.

(ii) Allocate the worker's cost to each job 'A', 'B' and 'C'.

Solution 4(b) :

(1) Calculate ordinary wage rate per hour of 'R' and 'S' :

Particulars	R	S
(i) Basic Wages (₹)	15,000	30,000
(ii) Dearness Allowance @ 50% of basic	7,500	15,000
(iii) Contribution to EPF @ 7% & 7.5% on basic wages	1,050	2,250
(iv) Contribution to ESI @ 2% on basic Wages	300	600
(v) Total of ordinary wages [i to iv]	23,850	47,850
(vi) Normal working hours per month	200	200
(vii) Ordinary wage rate per hour [v / vi]	119.25	239.25
(viii) Overtime wages [(15,000 + 7,500) x 2] x 20 / 200	4,500	-

(2) Allocation of the worker's cost to each job 'A', 'B' and 'C' :

Particulars	Total wages (₹)	Apportionment Basis	A	B	C
Ordinary wages of R	23,850	75 : 10 : 15	17,887.5	2,385	3,577.5
Ordinary wages of S	47,850	40 : 20 : 40	19,140	9,570	19,140
Overtime of R	4,500	Direct to A	4,500	--	--
Total labour cost	76,200		41,527.5	11,955	22,717.5

Question 4(c) : [4 Marks]

Discuss any four objectives of 'Time Keeping' in relation to attendance and payroll procedures.

Solution 4(c) :

The objectives of 'Time Keeping' in relation to attendance and payroll procedures are :

(a) For the preparation of payrolls i.e. calculation of wages of workers

(b) For calculating overtime wages

(c) For ascertaining and controlling employee cost

(d) For ascertaining idle time [My view : Idle time is ascertained by Time Booking Record]

(e) For disciplinary purposes (e.g. a worker who is continuously absent will be sacked).

(f) For overhead distribution (i.e. using as a basis for calculation of overhead recovery rate).

Question 5(a) : [10 Marks]

SEZ Ltd. built a 120 km. long highway and now operates a toll road to collect tolls. The company has invested ₹ 900 crore to build the road and has estimated that a total of 120 crore vehicles will be using the highway during the 10 years toll collection tenure. The other costs for the month of "June 2020" are as follows :

(i) Salary :

- Collection personnel (3 shifts and 5 persons per shift) - ₹ 200 per day per person.
- Supervisor (3 shifts and 2 persons per shift) - ₹ 350 per day per person.
- Security personnel (2 shifts and 2 persons per shift) - ₹ 200 per day per person.
- Toll Booth Manager (3 shifts and 1 person per shift) - ₹ 500 per day per person.

(ii) Electricity - ₹ 1,50,000

(iii) Telephone - ₹ 1,00,000

(iv) Maintenance Cost – ₹ 50 lakhs

(v) The company needs 30% profit over total cost.

Required :

(1) Calculate cost per kilometre.

(2) Calculate the toll rate per vehicle.

Solution 5(a) :

Calculation of Cost per Kilometre and Toll Rate per Vehicle :

Particulars	**Amount (₹)**
(a) Amortisation of capital cost [900 crores / 10 years x 1 / 12]	7,50,00,000
(b) Salary of collection personnel [₹ 200 x 30 days x 5 x 3 shifts]	90,000
(c) Salary of supervisors [₹ 350 x 30 days x 2 x 3 shifts]	63,000
(d) Salary of security personnel [₹ 200 x 30 days x 2 x 2 shifts]	24,000
(e) Salary of toll booth manager [₹ 500 x 30 days x 1 x 3 shifts]	45,000
(f) Electricity	1,50,000
(g) Telephone	1,00,000
(h) Maintenance cost	50,00,000
(i) Total cost per month [a to h]	**8,04,72,000**
(j) Profit @ 30% of total cost	2,41,41,600

(k) Total toll collection per month [i + j]	**10,46,13,600**
(l) Cost per kilometre per month [8,04,72,000 / 120 km.]	**6,70,600**
(m) No. of vehicles using the toll road per month [120 crores vehicles / 10 years] x 1/12	1,00,00,000
(n) Toll Rate per vehicle [k / m]	**10.46 (approx)**

Question 5(b) : [6 Marks]

ABC Ltd. is engaged in production of three types of Fruit Juices : Apple, Orange and Mixed Fruit. The following cost data for the month of March 2020 are as under :

Particulars	Apple	Orange	Mixed Fruit
Units produced and sold	10,000	15,000	20,000
Material per unit (₹)	8	6	5
Direct Labour per unit (₹)	5	4	3
No. of Purchase Orders	34	32	14
No. of Deliveries	110	64	52
Shelf Stocking Hours	110	160	170

Overheads incurred by the company during the month are as under :

Particulars	(₹)
Ordering Costs	64,000
Delivery Costs	1,58,200
Shelf Stocking Costs	87,560

Required :

(i) Calculate cost driver's rate.

(ii) Calculate total cost of each product using Activity Based Costing.

Solution 5(b) :

(1) Calculation of Cost Driver Rates :

Particulars	Activity Cost (₹)	Cost Driver	Cost Driver Rate (₹)
Ordering Costs	64,000	80 purchase orders	800 per order
Delivery Costs	1,58,200	226 deliveries	700 per delivery
Shelf Stocking Costs	87,560	440 shelf stocking hours	199 per hour

(2) Calculation of total cost of each product using ABC :

Particulars	Apple	Orange	Mixed Fruit
(a) Units produced and sold	10,000	15,000	20,000
(b) Material per unit (₹)	8	6	5
(c) Direct Labour per unit (₹)	5	4	3
(d) Prime cost per unit (₹) [b + c]	13	10	8
(e) No. of Purchase Orders	34	32	14
(f) Ordering cost [(e) x ₹ 800]	27,200	25,600	11,200
(g) No. of Deliveries	110	64	52
(h) Delivery cost [(g) x ₹ 700]	77,000	44,800	36,400
(i) Shelf Stocking Hours	110	160	170
(j) Shelf stocking cost [(i) x ₹ 199]	21,890	31,840	33,830
(k) Total overheads cost [f + h + j]	1,26,090	1,02,240	81,430
(l) OH cost per unit [k / a]	12.609	6.816	4.0715
(m) Total cost per unit [d + l]	25.609	16.816	12.0715

Question 5(c) : [4 Marks]

Describe the various levels of activities under `ABC' methodology.

Solution 5(c) :

Under ABC Methodology, the levels of various activities are classified in to the following 4 categories :

Type of Activity
1. Unit level activities : These are activities for which the consumption of resources can be identified with the number of units produced. The costs of some activities (mainly primary activities) are strongly correlated to the number of units produced.
2. Batch level activities : The costing of some activities (mainly manufacturing support activities) are driven by the number of batches of units produced. These are activities related to setting up of a batch or a production run. The costs of such activities vary with the number of batches made, but is fixed for all units within the batch.
3. Product level activities : The costs of some activities (often only once activities) are driven by the creation of a new product line and its maintenance. These are activities performed to support different products in the product line.
4. Facility level activities : These are activities necessary for sustaining the manufacturing process and cannot be directly attributed to individual products.

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

Answer any **four** of the following :

(a) Differentiate between “Cost Accounting and Management Accounting".

(b) What are the important points an organization should consider if it wants to adopt Performance Budgeting ?

(c) Explain what are the pre-requisites of integrated accounting.

(d) State the Method of Costing to be used in the following industries :

- Real Estate
- Motor repairing workshop
- Chemical Industry
- Transport service
- Assembly of bicycles
- Biscuits manufacturing Industry
- Power supply Companies
- Car manufacturing Industry
- Cement Industry
- Printing Press

(e) Differentiate between “Marginal and Absorption Costing”.

Solution 6 :

(a) Difference between “Cost Accounting and Management Accounting" :

SN	Particulars	Cost Accounting	Management Accounting
1.	Nature	It records quantitative aspects only.	It records both qualitative and quantitative aspects.
2.	Objective	It records the cost of producing a product and providing a service.	It provides information to management for planning, controlling and co-ordination.
3.	Area	It only deals with cost ascertainment.	It is wider in scope as it includes financial accounting, budgeting, taxation, planning etc.
4.	Recording of data	It uses both past and present figures.	It is focused with the projection of figures for future.
5.	Development	Its development is related to industrial revolution.	It develops in accordance to the need of modern business world.
6.	Rules and Regulations	It follows certain principles and procedures for recording costs of different products.	It does not follow any specific rules and regulations.

(b) Important points an organization should consider if it wants to adopt Performance Budgeting :

- the objectives of the enterprise are spelt out in concrete terms.
- the objectives are then translated into specific functions, programmes, activities and tasks for different levels of management within the realities of fiscal constraints.
- realistic and acceptable norms, yardsticks or standards and performance indicators should be evolved and expressed in quantifiable physical units.
- a style of management based upon decentralised responsibility structure should be adopted and
- an accounting and reporting system should be developed to facilitate monitoring, analysis and review of actual performance in relation to budgets.

(c) Pre-requisites of integrated accounting :

1. The management's decision about the extent of integration of the two sets of books. Some concerns find it useful to integrate up to the stage of prime cost or factory cost while other prefers full integration of the entire accounting records.
2. A suitable coding system must be made available so as to serve the accounting purposes of financial and cost accounts.
3. An agreed routine, with regard to the treatment of provision for accruals, prepaid expenses, other adjustment necessary for preparation of interim accounts.
4. Perfect coordination should exist between the staff responsible for the financial and cost aspects of the accounts and an efficient processing of accounting documents should be ensured.
5. Under this system there is no need for a separate cost ledger. Of course, there will be a number of subsidiary ledgers; in addition to the useful Customers' Ledger and the Purchase Ledger, there will be: (a) Stores Ledger; (b) Stock Ledger and (c) Job Ledger.

(d) Method of Costing to be used :

- Real Estate - Contract Costing
- Motor repairing workshop - Job Costing
- Chemical Industry - Process Costing
- Transport service - Service Costing / Operation Costing
- Assembly of bicycles - Multiple Costing
- Biscuits manufacturing Industry - Batch Costing
- Power supply Companies - Service Costing / Operation Costing
- Car manufacturing Industry - Multiple Costing
- Cement Industry - Process Costing [ICAI Answer : Single Output Costing]
- Printing Press - Job Costing

(e) Difference between "Marginal and Absorption Costing" :

	Absorption Costing		Marginal Costing
1.	Fixed cost is treated as Product Cost.	1.	Fixed cost is treated as Period Cost.
2.	Inventory is valued at total cost. (i.e. variable cost + fixed cost)	2.	Inventory is valued only at variable cost.
3.	Value of stock is higher under absorption costing.	3.	Value of stock is lower under marginal costing.
4.	Absorption Costing shows higher profits if Production is more than Sales. i.e. absorption costing rewards production.	4.	Marginal Costing shows higher profits if Sales is more than Production. i.e. marginal costing rewards sales.
5.	It is primarily used for accounting.	5.	It is primarily used for decision making.

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