CA Intermediate (New Syllabus)
Cost & Management Accounting (Paper 3)
May, 2022 Exam - 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]

Reference : Chapter 2 - Material Cost - EOQ

A Limited a toy company purchases its requirement of raw material from S Limited at ₹ 120 per kg. The company incurs a handling cost of ₹ 400 plus freight of ₹ 350 per order. The incremental carrying cost of inventory of raw material is ₹ 0.25 per kg per month. In addition the cost of working capital finance on the investment in inventory of raw material is ₹ 15 per kg per annum. The annual production of the toy is 60,000 units and 5 units of toys are obtained from one kg. of raw material.

Required :

(i) Calculate the Economic Order Quantity (EOQ) of raw materials.

(ii) Advise, how frequently company should order to minimize its procurement cost. Assume 360 days in a year.

(iii) Calculate the total ordering cost and total inventory carrying cost per annum as per EOQ.

Answer 1(a) :

(i) Calculation of Economic Order Quantity :

Annual production of toy	= 60,000 units
Annual consumption of Raw Material	= 60,000 units / 5 units = 12,000 kgs.
Ordering cost per order	= 400 + 350 = Rs. 750 per order
Carrying cost per kg. p.a.	= (0.25 x 12 months) + 15 = ₹ 18 per kg. p.a.

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

$$EOQ = \sqrt{\frac{2 \times 12{,}000 \text{ kg.} \times 750 \text{ per order}}{18 \text{ per kg. p.a.}}}$$

$$= 1{,}000 \text{ kgs.}$$

(ii) Frequency of placing an order :

No. of orders to be place in a year = 12,000 kg. / 1,000 kg. = 12 orders

Frequency of placing an order = 360 days / 12 orders = 30 days

(ii) Calculation of total cost at EOQ :

Particulars	Amount (₹)
(a) Order size (units)	1,000
(b) No. of orders p.a. (12,000 / a)	12
(c) Ordering cost p.a. [b x 750]	9,000
(d) Carrying cost p.a. [a / 2 x 18	9,000
(e) Total minimum cost p.a. [c + d]	18,000

Question 1(b) : [5 Marks]

Reference : Chapter 3 - Labour Cost - Employee Turnover

PQR Limited has replaced 72 workers during the quarter ended 31st March 2022. The labour rates for the quarter are as follows :

Flux method	16%
Replacement method	8%
Separation method	5%

You are required to ascertain :

(i) Average number of workers on roll (for the quarter),

(ii) Number of workers left and discharged during the quarter,

(iii) Number of workers recruited and joined during the quarter,

(iv) Equivalent employee turnover rates for the year.

Answer 1(b) :

(i) Turnover Ratio using Replacement method

$$= \frac{\text{No. of workers replaced}}{\text{Avg. no. of workers}}$$

$\therefore$ 8% = 72 / Avg. no. of workers

$\therefore$ Average workers = 72 / 8%

= 900 workers for the quarter

(ii) Turnover Ratio by Separation method

$$= \frac{\text{No. of workers left and discharged}}{\text{Avg. No. of workers}}$$

5% = X / 900

$\therefore$ X = 5% x 900

$\therefore$ No. of workers left & discharged = 45 workers during the quarter

(iii) Flux Method :-

$$= \frac{\text{No. of workers joined + No. of workers left}}{\text{Avg. no. of workers p.a.}}$$

$\therefore$ 16% = (X + 45) / 900

∴ 900 x 16% = X + 45

∴ 144 = X + 45

∴ 144 – 45 = X = 99 workers

∴ No. of workers recruited & joined = 99 workers during the quarter

(iv) Equivalent employee turnover rates for the year :

Note : Turnover rates are already given in the question for a quarter. We need to just convert it in to an annual rate as follows :

Flux Method	= 16% x 4	= 64% p.a.
Replacement Method	= 8% x 4	= 32% p.a.
Separation Method	= 5% x 4	= 20% p.a.

Question 1(c) : [5 Marks]

Reference : Chapter 13 - Marginal Costing - Cost BEP

Top-tech a manufacturing company is presently evaluating two possible machines for the manufacture of superior Pen-drives. The following information is available :

Particulars	**Machine A**	**Machine B**
Selling price per unit	₹ 400.00	₹ 400.00
Variable cost per unit	₹ 240.00	₹ 260.00
Total fixed costs per year	₹ 350 lakhs	₹ 200 lakhs
Capacity (in units)	8,00,000	10,00,000

Required :

(i) Recommend which machine should be chosen?

(ii) Would you change your answer, if you were informed that in near future demand will be unlimited and the capacities of the two machines are as follows?

Machine A – 12,00,000 units

Machine B – 12,00,000 units

Why ?

Answer 1(c) :

(i) Calculation of Cost BEP :

Cost BEP = Difference in Fixed Cost / Difference in variable cost per unit

= (350 - 200 lakhs) / (260 - 240 p.u.)

= 150 lakhs / 20 = 7,50,000 units

Conclusion :

For demand below 7,50,000 units p.a., Machine B is better and for the demand above 7,50,000 units p.a., Machine A is better. However, capacity of Machine A is restricted to 8,00,000 units, hence Machine B seems to be better than A.

(ii) Revised Answer :

If the demand will be unlimited in near future, then we should **buy Machine A**. Because Machine A is economical if demand exceeds 7,50,000 units p.a.

Question 1(d) : [5 Marks]

Reference : Chapter 9 - Service Costing

Coal is transported from two mines X & Y and unloaded at plots in a railway station. X is at distance of 15 kms and Y is at a distance of 20 kms from the rail head plots. A fleet of lorries having carrying capacity of 4 tonnes is used to transport coal from the mines. Records reveal that average speed of the lorries is 40 kms per hour when running and regularly take 15 minutes to unload at the rail head.

At Mine X average loading time is 30 minutes per load, while at mine Y average loading times is 25 minutes per load.

Additional Information :

Drivers' wages, depreciation, insurance and taxes, etc. ₹ 12 per hour.

Operated Fuel, oil tyres, repairs and maintenance, etc. ₹ 1.60 per km.

You are required to prepare a statement showing the cost per tonne kilometre of carrying coal from each mine 'X' and 'Y'.

Answer 1(d) :

Comparison of the Cost per Tonne Km. for each mine :

Particulars	**Mine 'X'**	**Mine 'Y'**
(a) One way distance from rail head (kms.)	15	20
(b) Distance per round trip (kms.) [a x 2]	30	40
(c) Variable cost per round trip [b x 1.60]	48	64
(d) Travelling time per round trip (minutes) [60 min. / 40 km. x b]	45	60
(e) Loading time at mine (minutes)	30	25
(f) Unloading time at rail head (minutes)	15	15
(g) Total time per round trip (minutes) [d + e + f]	90	100
(h) Fixed cost per round trip [12/60 x g]	18	20
(i) Total cost per round trip [c + h]	₹ 66	₹ 84
(j) Tonne Kms. per round trip	60 [4 x 15]	80 [4 x 20]
(k) Cost per ton km. [i / j]	₹ 1.10	₹ 1.05

Question 2(a) : [10 Marks]

Reference : Chapter 4 - Overheads

In a manufacturing company, the overhead is recovered as follows :

Factory Overheads : a fixed percentage basis on direct wages and

Administrative overheads : a fixed percentage basis on factory cost.

The company has furnished the following data relating to two jobs undertaken by it in a period.

Particulars	**Job 1 (₹)**	**Job 2 (₹)**
Direct materials	1,08,000	75,000
Direct wages	84,000	60,000
Selling price	3,33,312	2,52,000
Profit percentage on total cost	12%	20%

You are required to :

(i) Compute the percentage recovery rates of factory overheads and administrative overheads.

(ii) Calculate the amount of factory overheads, administrative overheads and profit for each of the two jobs.

(iii) Using the above recovery rates, determine the selling price to be quoted for job 3. Additional data pertaining to Job 3 is as follows :

Direct materials	₹ 68,750
Direct wages	₹ 22,500
Profit percentage on selling price	15%

Answer 2(a) :

(i) Calculation of Overhead Recovery Rates :

Let us assume the factory overheads are recovered at x% of Direct wages, and Administrative Overheads are recovered at y% of Factory Cost.

Particulars	Job 1 (Rs.)	Job 2 (Rs.)
a) Direct Material	1,08,000	75,000
b) Direct Wages	84,000	60,000
c) Prime Cost (a + b)	1,92,000	1,35,000
d) Add: Factory Overheads @ x% of Direct Wages	840x	600x
e) Factory Cost (c + d)	1,92,000 + 840x	1,35,000 + 600x
f) Add : Administrative Overheads @ y% of Factory cost	1,920y + 8.4xy	1,350y + 6xy
g) Total Cost (e + f)	1,92,000 + 840x + 1,920y + 8.4xy	1,35,000 + 600x + 1,350y + 6xy
h) Selling Price	3,33,312	2,52,000
i) Profit as % of total cost	12%	20%
j) Amount of profit	35,712 [3,33,312 x 12/112]	42,000 [2,52,000 x 20/120]
k) Total Cost (h – j)	2,97,600	2,10,000

Equating the total cost as calculated in (g) and (k) above, we get -

1,92,000 + 840x + 1,920y + 8.4xy = 2,97,600 From Job 1

840x + 1,920y + 8.4xy = 1,05,600 Eq. (i)

1,35,000 + 600x + 1,350y + 6xy = 2,10,000 From Job 2

600x + 1,350y + 6xy = 75,000 Eq. (ii)

Multiplying Eq. (ii) by 1.4, we get -

840x + 1,890y + 8.4xy = 1,05,000 Eq. (iii)

Subtracting Eq. (iii) from Eq. (i), we get -

840x + 1,920y + 8.4xy = 1,05,600 Eq. (i)

\- 840x + 1,890y + 8.4xy = 1,05,000 Eq. (iii)

30y = 600

Hence, y = 20

Substituting y = 20 in Eq. (i), we get -

840x + 1,920y + 8.4xy = 1,05,600 Eq. (i)

840x + [1920 * 20] + [8.4x * 20] = 1,05,600

840x + 38,400 + 168x = 1,05,600

1,008x = 67,200

x = 66.67%

Hence, Factory Overhead Rate = 66.67% of Direct Wages

And Administrative Overhead Rate = 20% of Factory Cost

(ii) Cost Sheet of Job 1 and Job 2 :

Particulars	Job 1 (Rs.)	Job 2 (Rs.)
Direct Material	1,08,000	75,000
Direct Wages	84,000	60,000
PRIME COST	1,92,000	1,35,000
Add: Factory OH @ 66.67% of Direct Wages	56,000	40,000
FACTORY COST	2,48,000	1,75,000
Add: Admin. Overheads @ 20% of factory cost	49,600	35,000
TOTAL COST	2,97,600	2,10,000
Add: Profit @ 12% & 20% on total cost	35,712	42,000
SELLING PRICE	3,33,312	2,52,000

(iii) Calculation of Selling Price for Job 3 :

Particulars	(Rs.)
Direct Material	68,750
Direct Labour	22,500
PRIME COST	91,250
Add: Factory Overheads (66.67% of 22,500)	15,000
FACTORY COST	1,06,250
Add: Administrative Overheads (20% of 1,06,250)	21,250
TOTAL COST	1,27,500
Add: Profit @ 15% of sales price i.e. (1,27,500 x 15 / 85 of cost)	22,500
SELLING PRICE	1,50,000

Question 2(b) : [5 Marks]

Reference : Chapter 8 - Contract Costing

Paramount Constructions Limited is engaged in construction and erection of bridges under long term contracts. It has entered into a big contract at a agreed price of ₹ 250 Lakhs subject to an escalation clause for material and labour as spelt out in the contract and corresponding actual are as follows :

	Standard		Actual	
Material	**Quantity Tonnes**	**Rate per Tonne (₹)**	**Quantity Tonnes**	**Rate per Tonne (₹)**
P	2,800	1,500	3,000	1,750
Q	3,100	900	2,900	800
R	800	4,500	950	4,350
S	150	32,500	120	34,200
Labour	**Hours**	**Hourly rate (₹)**	**Hours**	**Hourly rate (₹)**
LM	65,000	60	61,500	70
LN	46,000	45	45,000	50

Required :

(i) Prepare a statement showing admissible additional claim of material and labour due to escalation clause.

(ii) Determine the final price payable after admissible escalation claim.

Answer 2(b) :

(i) Calculation of admissible claim of material and labour due to escalation clause :

	Standard		Actual	Difference	Claim
Material	**Quantity Tonnes**	**Rate per Tonne (₹)**	**Rate per Tonne (₹)**	**Rate per Tonne (₹)**	**Amount (₹)**
P	2,800	1,500	1,750	250	7,00,000
Q	3,100	900	800	(100)	(3,10,000)
R	800	4,500	4,350	(150)	(1,20,000)
S	150	32,500	34,200	1,700	2,55,000
Labour	**Hours**	**Hourly rate (₹)**	**Hourly rate (₹)**	**Hourly rate (₹)**	**Amount (₹)**
LM	65,000	60	70	10	6,50,000
LN	46,000	45	50	5	2,30,000
Total amount of admissible additional claim					14,05,000

(ii) Final price payable after admissible escalation claim :

= ₹ 250 lakhs + 14.05 lakhs

= ₹ 264.05 lakhs

Question 2(c) : [5 Marks]

Reference : Theory Question - Job & Process Costing

Distinguish between Job costing and Process Costing. (Any five points of differences)

Answer 2(c) :

S.N.	Job costing	Process costing
1	Production is made by specific orders.	Uniform production in continuous flow.
2	Costs are determined by jobs.	Costs are compiled on time basis for each process.
3	The various jobs are separate and independent form each other.	Being manufactured in continuous flow, products lose their individual identity.
4	Job cost is ascertained when job is complete.	Process costs are calculated periodically.
5	There are usually no inter-job transfers.	In a continuous flow, there is transfer from one process to another process continuously.
6	There may or may not be work-in progress at the end of an accounting period.	Production being continuous, there is some work–in-progress at the beginning as well as at the end of the accounting period.
7	Each job being independent, more managerial attention is required for proper control.	Process production is standardised. Control becomes comparatively easier.

Question 3(a) : [10 Marks]

Reference : Chapter 15 - Budgetary Control

SR Ltd. is a manufacturer of Garments. For the first three months of financial year 2022-23 commencing on 1st April 2022, production will be constrained by direct labour. It is estimated that only 12,000 hours of direct labour hours will be available in each month.

For market reasons, production of either of the two garments must be at least 25% of the production of the other. Estimated cost and revenue per garment are as follows :

Particulars	Shirt (₹)	Short (₹)
Sales price	60	44
Raw Materials :		
Fabric @ 12 per metre	24	12
Dyes and cotton	6	4
Direct labour @ 8 per hour	8	4
Fixed Overhead @ 4 per hour	4	2
Profit	18	22

From the month of July 2022 direct labour will no longer be a constraint. The company expects to be able to sell 15,000 shirts and 20,000 shorts in July, 2022. There will be no opening stock at the beginning of July 2022.

Sales Volumes are expected to grow at 10% per month cumulatively thereafter throughout the year. Following additional information is available :

- The company intends to carry stock of finished garments sufficient to meet 40% of the next month's sale from July 2022 onwards.
- The estimated selling price will be same as above.

Required :

I. Calculate the number of shirts and shorts to be produced per month in the first quarter of financial year 2022-2023 to maximize company's profit.

II. Prepare the following budgets on a monthly basis for July, August and September, 2022 :

(i) Sales budget showing sales units and sales revenue for each product.

(ii) Production budget (in units) for each product.

Answer 3(a) :

Working Notes :

Calculation of contribution per labour hour and ranking :

Particulars	**Shirt (₹)**	**Short (₹)**
(a) Sales price	60	44
(b) Raw Materials :		
Fabric @ 12 per metre	24	12
Dyes and cotton	6	4
(c) Direct labour @ 8 per hour	8	4
(d) Contribution per unit [a - b - c]	22	24
(e) Labour hours per unit [c / 8]	1	0.5
(f) Contribution per hour [d / e]	22	48

Note : From the above working, we come to know that 'Short' earns the highest contribution per hour and hence should be produced in maximum quantity to generate maximum profit.

I. Calculation of the number of shirts and shorts to be produced per month in the first quarter of financial year 2022-2023 to maximize company's profit :

Let's assume No. of units to be produced of 'Short' = X per month and

No. of units to be produced of 'Shirt' = 0.25X per month

Hence, [X * 0.5] + [0.25X * 1] = 12,000 labour hours

0.5X + 0.25X = 12,000 and hence X = 16,000

We should produce 0.25X i.e. 4,000 Shirts and 16,000 Shorts per month.

II. Sales & Production Budget for July, August & September, 2022 :

Particulars	July	August	Sept.	Oct.
Product Shirt :				
Sales (units) with 10% increase	15,000	16,500	18,150	19,965
Add : Closing stock @ 40% of next month's sales	6,600	7,260	7,986	
Less : Opening stock	0	(6,600)	(7,260)	
∴ Production (units)	21,600	17,160	18,876	
Sales Revenue @ ₹ 60 per unit	9,00,000	9,90,000	10,89,000	
Product Short :				
Sales (units) with 10% increase	20,000	22,000	24,200	26,620
Add : Closing stock @ 40% of next month's sales	8,800	9,680	10,648	
Less : Opening stock	0	(8,800)	(9,680)	
∴ Production (units)	28,800	22,880	25,168	
Sales Revenue @ ₹ 44 per unit	8,80,000	9,68,000	10,64,800	

Question 3(b) : [10 Marks]

Reference : Chapter 6 - Cost Sheet

The following data are available from the books and records of A Ltd. for the month of April, 2022 :

Particulars	Amount (₹)
Stock of raw materials on 1st April, 2022	10,000
Raw materials purchased	2,80,000
Manufacturing wages	70,000
Depreciation on plant	15,000
Expenses paid for quality control check activities	4,000
Lease Rent of Production Assets	10,000
Administrative Overheads (Production)	15,000
Expenses paid for pollution control and engineering & maintenance	1,000
Stock of raw materials on 30th April, 2022	40,000
Primary packing cost	8,000
Research & development cost (Process related)	5,000
Packing cost for redistribution of finished goods	1,500
Advertisement expenses	1,300

Stock of finished goods as on 1st April, 2022 was 200 units having a total cost of ₹ 28,000. The entire opening stock of finished goods has been sold during the month. Production during the month of April, 2022 was 3,000 units. Closing stock of finished goods as on 30th April, 2022 was 400 units.

You are required to :

I. Prepare a Cost Sheet for the above period showing the :

(i) Cost of Raw Material consumed

(ii) Prime Cost

(iii) Factory Cost

(iv) Cost of Production

(v) Cost of goods sold

(vi) Cost of sales

II. Calculate selling price per unit, if sale is made at a profit of 20% on sales.

Answer 3(b) :

Cost Sheet of A Ltd. for April, 2022 : [Production : 3,000 units & Sales : 2,800 units]

Particulars	**Amount (₹)**	**Amount (₹)**
Direct Material Consumed :		
Raw materials purchased	2,80,000	
Add: Opening stock	10,000	
Less: Closing stock	(40,000)	**2,50,000**
Manufacturing Wages		70,000
PRIME COST		**3,20,000**
Add : Factory Overheads :		
Depreciation on plant	15,000	
Lease rent of production assets	10,000	
Expenses paid for pollution control and engineering	1,000	26,000
FACTORY COST		**3,46,000**
Quality control cost		4,000
Research & development cost (process related)		5,000
Administrative overheads (production)		15,000
Primary packing cost		8,000
COST OF PRODUCTION [3,000 units]		**3,78,000**
Add : Opening stock of Finished goods [200 units]		28,000
Less : Closing stock of Finished goods [3,78,000 / 3,000 x 400]		(50,400)
COST OF GOODS SOLD [2,800 units]		**3,55,600**
Add : Advertisement expenses		1,300
Add : Secondary packing cost for distribution of FG		1,500
COST OF SALES		**3,58,400**

Add : Profit @ 20% of sales i.e. [20/80 x 3,58,400]		89,600
∴ Sales Revenue		4,48,000
∴ Selling Price per unit [4,48,000 / 2,800 units]		**160**

Question 4(a) : [10 Marks]

Reference : Chapter 10 - Process Costing

STG Limited is a manufacturer of Chemical 'GK', which is required for industrial use. The complete production operation requires two processes. The raw material first passes through Process I, where Chemical 'G' is produced. Following data is furnished for the month April, 2022 :

Particulars	**(in kgs.)**
Opening work-in-progress quantity (Material 100% and conversion 50% complete)	9,500
Material input quantity	1,05,000
Work Completed quantity	83,000
Closing work-in-progress quantity (Material 100% and conversion 60% complete)	16,500

You are further provided that :

Particulars	**(in ₹)**
Opening work-in-progress cost	
Material cost	29,500
Processing cost	14,750
Material input cost	3,34,500
Processing cost	2,53,100

Normal process loss may be estimated to be 10% of material input. It has no realizable value. Any loss over and above normal loss is considered to be 100% complete in material and processing.

The Company transfers 60,000 kgs. of output (Chemical G) from Process I to Process II for producing Chemical 'GK'. Further materials are added in Process II which yield 1.20 kg. of Chemical 'GK' for every kg. of Chemical 'G' introduced. The chemicals transferred to Process II for further processing are then sold as Chemical 'GK' for ₹ 10 per kg. Any quantity of output completed in Process I, are sold as Chemical 'G' @ ₹ 9 per kg.

The monthly costs incurred in Process II (other than the cost of Chemical 'G') are :

Input 60,000 kg. of Chemical 'G'

Materials Cost ₹ 85,000

Processing Costs ₹ 50,000

You are required to :

(i) Prepare Statement of Equivalent production and determine the cost per kg. of Chemical 'G' in Process I using the weighted average cost method.

(ii) Prepare a statement showing cost of Chemical 'G' transferred to Process II, cost of abnormal loss and cost of closing work-in-progress.

(iii) STG is considering the option to sell 60,000 kg. of Chemical 'G' of Process I without processing it further in Process-II. Will it be beneficial for the company over the current pattern of processing 60,000 kg. in process-II ?

(Note : You are not required to prepare Process Accounts)

Answer 4(a) :

1. Statement of equivalent production (weighted average method) :

Particulars	Total units	Equivalent Production			
		Material Cost		Conversion cost	
		%	Units	%	Units
Input:					
- Opening W.I.P.	9,500				
- Input of material	1,05,000				
Total Input	1,14,500				
Output :					
A) Work Completed	83,000	100%	83,000	100%	83,000
B) Normal Loss 10%	10,500	--	--	--	--
C) Abnormal Loss (BF)	4,500	100%	4,500	100%	4,500
D) Closing WIP	16,500	100%	16,500	60%	9,900
Total	1,14,500		1,04,000		97,400

2. Statement of Cost for Process I :

Particulars	Material	Conversion	Total (Rs.)
Cost of opening WIP	29,500	14,750	44,250
Add: Cost incurred during the period	3,34,500	2,53,100	5,87,600
Total Cost	3,64,000	2,67,850	6,31,850
(÷) Equivalent units	1,04,000	97,400	
Cost per Equivalent Unit (₹ / kg.)	3.50	2.75	6.25

Note : Out of 83,000 kg. of 'G' completed, only 60,000 kg. is transferred to Process II and remaining 23,000 kg. of 'G' is sold @ ₹ 9 per kg.

3. Allocation of Cost :

Particulars	Rs.	Rs.
A) Cost of Chemical G transferred to Process II : [60,000 kg. x Rs. 6.25 per kg.]		3,75,000
B) Closing WIP :		
Material [16,500 kg. x Rs. 3.50]	57,750	
Conversion [9,900 kg. x Rs. 2.75]	27,225	84,975
C) Abnormal Loss [4,500 kg. x Rs. 6.25]		28,125

4. Incremental Profit / (Loss) on further processing of 'G' into 'GK' :

Particulars	Rs.	Rs.
Sale Value of 'GK' [60,000 kg. x 1.20 x Rs. 10]		7,20,000
Less : Further Processing Cost :		
Material cost	85,000	
Processing cost	50,000	
Opportunity cost of 'G' [60,000 x Rs. 9]	5,40,000	6,75,000
∴ Incremental Profit		45,000

Conclusion : Considering an incremental profit, we can say that the current pattern of processing 'G' in process-II is more beneficial to the company.

Question 4(b) : [5 Marks]

Reference : Chapter 13 - Marginal Costing

UV Limited started a manufacturing unit from 1st October 2021. It produces designer lamps and sells its lamps at ₹ 450 per unit.

During the quarter ending on 31st December, 2021, it produced and sold 12,000 units and suffered a loss of ₹ 35 per unit.

During the quarter ending on 31st March, 2022, it produced and sold 30,000 units and earned a profit of ₹ 40 per unit.

You are required to calculate :

(i) Total fixed cost incurred by UV Ltd. per quarter.

(ii) Break Even sales value (in rupees)

(iii) Calculate Profit, if the sale volume reaches 50,000 units in the next quarter (i.e., quarter ending on 30th June, 2022).

Answer 4(b) :

(i) Calculation of Fixed Cost for the quarter :

Loss during quarter ending on 31.12.2021 = 12,000 units x 35 p.u. = ₹ 4,20,000

Profit during quarter ending on 31.03.2022 = 30,000 units x 40 p.u. = ₹ 12,00,000

Contribution per unit = Change in Profit / Change in Output

= [₹ 12,00,000 - (- 4,20,000)] / (30,000 - 12,000 units)

= ₹ 16,20,000 / 18,000 units = ₹ 90 per unit

Fixed Cost = Contribution - Profit

Using data at 30,000 units, we get fixed cost as

= (30,000 units x 90) - 12,00,000

= ₹ 15,00,000 per quarter

(ii) Calculation of BEP sales :

Profit Volume Ratio = Contribution / Sales Price

= 90 / 450 x 100 = 20%

BEP value = Fixed Cost / P V Ratio

= 15,00,000 / 20% = ₹ 75,00,000 for a quarter

(iii) Calculate of Profit, if the sale volume reaches 50,000 units :

Profit = Contribution - Fixed Cost

= (50,000 units x 90) - 15,00,000

= ₹ 30,00,000 for the quarter ending on 30.06.2022

Question 4(c) : [5 Marks]

Reference : Chapter 12 - Ledger Accounting

Journalize the following transactions assuming the cost and financial accounts are integrated :

Particulars	Amount (₹)
Direct Materials issued to production	5,88,000
Allocation of Wages (Indirect)	7,50,000
Factory Overheads (Over absorbed)	2,25,000
Administrative Overheads (Under absorbed)	1,55,000
Deficiency found in stock of Raw Material (Normal)	2,00,000

Answer 4(c) :

Journal Entries under Integrated Accounts

SN	Particulars	L/F	Dr. Amount	Cr. Amount
1.	Work in Progress Control A/c Dr. To, Stores Ledger Control A/c [Being Direct Materials issued to production]		5,88,000	5,88,000
2.	Manufacturing Overheads Control A/c Dr. To, Wages Control A/c [Being allocation of indirect wages]		7,50,000	7,50,000
3.	Factory Overheads Control A/c Dr. To, Profit & Loss A/c [Being over absorption of factory overheads, Transferred to P&L A/c]		2,25,000	2,25,000
4.	Profit & Loss A/c Dr. To, Administration Overheads A/c [Being under absorption of admin. overheads, Transferred to P&L A/c]		1,55,000	1,55,000
5.	Factory Overheads Control A/c Dr. To, Stores Ledger Control A/c [Being normal loss of material transferred To Factory OH A/c]		2,00,000	2,00,000

Question 5(a) : [10 Marks]

Reference : Chapter 5 - Activity Based Costing

Star Limited manufacture three products using the same production methods. A conventional product costing system is being used currently. Details of the three products for a typical period are :

Product	Labour Hrs. Per unit	Machine Hrs. Per unit	Materials per Unit (₹)	Volume in Units
AX	1.00	2.00	35	7,500
BX	0.90	1.50	25	12,500
CX	1.50	2.50	45	25,000

Direct Labour costs ₹ 20 per hour and production overheads are absorbed on a machine hour basis. The overhead absorption rate for the period is ₹ 30 per machine hour.

Management is considering using Activity Based Costing system to ascertain the cost of the products. Further analysis shows that the total production overheads can be divided as follows :

Particulars	%
Cost relating to set-ups	40
Cost relating to machinery	10
Cost relating to material handling	30
Cost relating to inspection	20
Total production overhead	100

The following activity volumes are associated with the product line for the period as a whole. Total activities for the period :

Product	No. of set-ups	No. of movements of Materials	No. of Inspections
AX	350	200	200
BX	450	280	400
CX	740	675	900
Total	1,540	1,155	1,500

Required :

(i) Calculate the cost per unit for each product using the conventional method.

(ii) Calculate the cost per unit for each product using activity based costing method.

Answer 5(a) :

Working Notes :

WN1 - Key Details :

Particulars	AX	BX	CX	Total
(a) Volume in Units	7,500	12,500	25,000	
(b) Machine Hours per unit	2.00	1.50	2.50	
(c) Total machine hours [a x b]	15,000	18,750	62,500	96,250
(d) Total overheads (₹) [96,250 x 30]				28,87,500

WN2 - Activity wise details of overheads :

Particulars	%	Amount (₹)
Cost relating to set-ups	40	11,55,000
Cost relating to machinery	10	2,88,750
Cost relating to material handling	30	8,66,250
Cost relating to inspection	20	5,77,500
Total production overhead	100	28,87,500

(i) Calculation of the cost per unit for each product using the conventional method :

Particulars	AX	BX	CX
(a) Materials per unit (₹)	35	25	45
(b) Labour Hours per unit	1.00	0.90	1.50
(c) Labour cost per unit [b x 20] (₹)	20	18	30
(d) Machine Hours per unit	2.00	1.50	2.50
(e) Overheads per unit [d x 30] (₹)	60	45	75
(f) Product cost per unit [a + c + e] (₹)	115	88	150

(ii) Calculation of the cost per unit for each product using ABC method :

Particulars	Total	AX	BX	CX
(a) Cost relating to set-ups apportioned using no. of set ups in the ratio 350 : 450 : 740	11,55,000	2,62,500	3,37,500	5,55,000
(b) Cost relating to machinery apportioned using total machine hours in the ratio of 15000 : 18750 : 62500	2,88,750	45,000	56,250	1,87,500
(c) Cost relating to material handling apportioned using no. of material movements as 200 : 280 : 675	8,66,250	1,50,000	2,10,000	5,06,250

(d) Cost relating to inspection apportioned using no. of inspections as 200 : 400 : 900	5,77,500	77,000	1,54,000	3,46,500
(e) Total overheads [a to d]	28,87,500	5,34,500	7,57,750	15,95,250
(f) Volume in Units		7,500	12,500	25,000
(g) Overheads per unit [e / f]		71.27	60.62	63.81
(h) Materials per unit (₹)		35	25	45
(i) Labour cost per unit [b x 20] (₹)		20	18	30
(f) Total cost per unit [g + h + i] (₹)		126.27	103.62	138.81

Question 5(b) : [5 Marks]

Reference : Chapter 14 - Standard Costing

A manufacturing department of a company has employed 120 workers. The standard output of product "NPX" is 20 units per hour and the standard wage rate is ₹ 25 per labour hour.

In a 48 hours week, the department produced 1,000 units of "NPX" despite 5% of the time paid being lost due to an abnormal reason. The hourly wages actually paid were ₹ 25.70 per hour.

Calculate :

(i) Labour Cost Variance

(ii) Labour Rate Variance

(iii) Labour Efficiency Variance

(iv) Labour Idle time Variance

Answer 5(b) :

Hint : Use three variance method

Working Notes :

In absence of specific information, it is assumed that 120 workers together as a gang can produce a standard output of 20 units per gang hour

Hence, standard gang hours required for actual output of 1,000 units

= 1,000 units / 20 units per hour = 50 gang hours

Hence, standard labour hours = 50 gang hours x 120 workers = 6,000 labour hours

Actual labour hours paid = 48 gang hours x 120 workers = 5,760 labour hours

Actual labour hours worked = 5,760 hours - 5% idle time = 5,472 labour hours

(i) Labour Cost Variance :

= (Std. hours x Std. Rate) – (Actual hours paid x Actual rate)

= (6,000 x 25) – (5,760 x 25.70)

= ₹ 1,968 (F)

(ii) Labour Rate Variance

= Actual hours paid x (Std. Rate – Actual Rate)

= 5,760 x (25 – 25.70) = ₹ 4,032 (A)

(iii) Labour Efficiency Variance

= Std. Rate x (Std. hours – Actual hours worked)

= 25 x (6,000 – 5,472) = ₹ 13,200 (F)

(iv) Labour Idle Time Variance

= Std. Rate x (Actual hours paid – Actual hours worked)

= 25 x (5,760 – 5,472) = ₹ 7,200 (A)

Question 5(c) : [5 Marks]

Reference : Chapter 11 - Joint Product Costing

RST Limited produces three joint products X, Y and Z. The products are processed further. Pre-separation costs are apportioned on the basis of weight of output of each joint product. The following data are provided for the month of April, 2022.

Cost incurred up to separation point : ₹ 10,000

Particulars	**Product X**	**Product Y**	**Product Z**
Output (in litre)	100	70	80
	₹	₹	₹
Cost incurred after separation point	2,000	1,200	800
Selling Price per Litre :			
After further processing	50	80	60
At pre-separation point (estimated)	25	70	45

You are required to :

(i) Prepare a statement showing profit or loss made by each product after further processing using the presently adopted method of apportionment of pre-separation cost.

(ii) Advise the management whether, on purely financial consideration, the three products are to be processed further or not.

Answer 5(c) :

(i) Profitability statement after further processing :

Particulars	**Product X**	**Product Y**	**Product Z**	**Total**
(a) Output (in litre)	100	70	80	250
	₹	₹	₹	
(b) Joint cost apportioned in the Ratio of output given in (a)	4,000	2,800	3,200	10,000
(c) Cost after separation point	2,000	1,200	800	4,000
(d) Total cost [b + c]	6,000	4,000	4,000	14,000
(e) Sales price after further processing	50	80	60	
(f) Total sales value [a x e]	5,000	5,600	4,800	15,400
(g) Profit / (Loss) [f - d]	(1,000)	1,600	800	1,400

(ii) Further processing decision :

Particulars	Product X	Product Y	Product Z
(a) Output (in litre)	100	70	80
	₹	₹	₹
(b) Sales price after further processing	50	80	60
(c) Sales price at split off point	25	70	45
(d) Sales value after further processing [a x b]	5,000	5,600	4,800
(e) Sales value at split off point [a x c]	2,500	4,900	3,600
(f) Incremental sales revenue [d - e]	2,500	700	1,200
(g) Incremental cost after separation point	2,000	1,200	800
(h) Incremental Profit / (Loss) [f - g]	500	(500)	400
(i) Further processing decision	Yes	No	Yes

Question 6 : Theory Questions

Answer any four of the following : [4 Que. x 5 Marks each = 20 Marks]

(a) Briefly explain the essential features of a good Cost Accounting System.

(b) Write down the treatment of following items associated with purchase of materials.

(i) Cash discount

(ii) IGST

(iii) Demurrage

(iv) Shortage

(v) Basic Custom Duty

(c) Explain the treatment of Overtime Premium in following situations :

(i) SV & Co. wants to grab some special orders, and overtime is required to meet the same.

(ii) Dept. X has to work overtime to make up a shortfall in production due to some fault of management in dept. Y.

(iii) S Ltd. has to work overtime regularly throughout the year as a policy due to the workers' shortage.

(iv) Due to flood in Odisha, RS Ltd. has to work overtime to compete the job.

(v) A customer requested the company MN Ltd. to expedite the job because of his urgency of work.

(d) Discuss briefly some of the criticism which may be levelled against the Standard Costing System.

(e) Identify the methods of costing from the following statements :

(i) Costs are directly charged to a group of products.

(ii) Nature of the product is complex and method cannot be ascertained.

(iii) Cost is ascertained for a single product.

(iv) All costs are directly charged to a specific job.

(v) Costs are charged to operations and averaged over units products.

Answer 6 :

(a) Essentials Features of a Good Costing System :

1. It must be informative and simple.
2. It should be accurate and authentic.
3. It should involve minimum clerical work and expenditure.
4. It should fulfill the requirements and needs of management for cost control and decision making.
5. It should be flexible and adaptive to take care of any changes, expansion or modernization without much difficulty and cost.
6. The cost accounting system should be integrated with other systems like financial accounting, taxation, legal compliance etc.
7. Uniformity and consistency - There should be a uniformity and consistency in classification, treatment and reporting of cost data and related information. This is required for comparability of results within the organisation and outside the organisation.
8. Trust on the system - Management should have trust on the system and its output. For this, an active role of management is required for the development of such a system that reflects a strong conviction in using information for decision making.

(b) Treatment of certain items while purchase of material :

S.N.	Items	Treatment
(i)	Cash Discount	Cash discount **is not deducted** from the purchase price. It is treated as interest and finance charges. It is ignored.
(ii)	IGST	Integrated Goods and Service Tax (IGST) is paid on inter-state supply of goods and provision of services and collected from the buyers. It **is excluded** from the cost of purchase if credit for the same is available. Unless mentioned specifically it should not form part of cost of purchase.
(iii)	Demurrage	Demurrage is a penalty imposed by the transporter for delay in uploading or offloading of materials. It is an abnormal cost and **not included** with cost of purchase.
(iv)	Shortage	Shortage in materials are treated as follows: **Shortage due to normal reasons :** Good units absorb the cost of shortage due to normal reasons. Losses due to shrinkage, evaporation, normal breakage or due to any unavoidable conditions etc. are the reasons of normal loss.

		Shortage due to abnormal reasons : Shortage arises due to abnormal reasons such as material mishandling, theft, breaking of bulk, accident or due to any avoidable reasons are not absorbed by the good units. Losses due to abnormal reasons are debited to costing profit and loss account.
(v)	Basic Custom Duty	Basic Custom duty is paid on import of goods from outside India. It **is added** with the purchase cost.

(c) Treatment of Overtime Premium :

S.N.	Company	Treatment
(i)	SV & Co.	My View : Charge to the specific order itself ICAI View : Charge to the Overheads of respective department.
(ii)	Dept. X	Charge to the overheads of Dept. Y
(iii)	S Ltd.	Use inflated rate method and spread it over all the products
(iv)	RS Ltd.	Charge to Costing Profit & Loss Account
(v)	MN Ltd.	Charge to the specific customer order itself

(d) Criticism of Standard Costing System :

Student Note : Answer to this question can be found in ICAI module on page no. 13.49. As this answer is lengthy, a student can skip this sub-question. You have to answer any 4.

(i) Variation in Price : Usually there is a huge fluctuation in the prices of material and wage rates in real life situations. Hence, predicting the standard price of material and standard wage rates would be a difficult task. It will make the comparison between standard and actual data irrelevant.

(ii) Varying levels of Output : For calculation of overhead recovery rate, we use the budgeted output / budgeted hours as a denominator. However, in real life situations, predicting the budgeted output is very difficult and there might be a huge difference between the budgeted output and actual output. Due to this, the overhead recovery rate may vary widely.

(iii) Change in Technology : In today's world of constant change, often there are frequent changes in the technology and the methods of production. This will make the standards set on the basis of earlier technology as non viable. In such industries, we need to revise the standards very frequently.

(iv) Attitude of Technical People : It is very common to face the opposition from technical people, when we set the standards of their performance. For this, we need to educate them about the need and suitability of standard costing system.

(v) Mix of Products : In case if a company manufactures multiple products, we often assume certain product mix for such multiple products. However, actual sales and production may not be in the same proportion which was decided earlier. Similarly, the mixing proportion of raw material may also change due to change in production process. All this will make the standard data as non comparable with actual data. In such cases, we need to revise the standards very frequently.

(vi) Level of Performance : Standards set may be either too strict or too liberal because they are based on (a) theoretical maximum efficiency (b) attainable efficiency or (c) average past performance.

If the standards set are too strict, then we will not get the cooperation of employees in implementing standard costing system. Hence, management should consider an attainable level of efficiency while setting the standards.

(vii) Standard costs may not reflect true value : Often historical cost data is considered while setting the standards. In such case, the standards may become redundant and non comparable. One should consider all the internal and external factors in mind and future changes, while setting the standards of performance. One should try to set the realistic level of performance.

(viii) Fixation of Standards may be Costly : The process of setting the standards and implementing the standard costing system is costly. It requires high degree of forecasting skill and knowledge and administrative work. Hence, small concerns feel that the cost of implementing the standard costing system is higher than the benefits derived from such system.

(e) Methods of Costing :

S.N.	Method of Costing
(i)	Batch Costing
(ii)	Multiple Costing
(iii)	Single Output Costing
(iv)	Job Costing
(v)	Process Costing

Important Note for Students :

There might be a difference in the presentation of ICAI answer and my answer given above. However, the answer should be logically same. If there is a difference of opinion, then I provide a note in the answer itself.

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