

Q 1

1. $EOQ = \sqrt{\frac{2AB}{C}}$,

where

A = Annual Requirement of Raw materials = 72,000 units (given)

B = Buying Cost per order = ₹ 2,250 per order (given)

C = Carrying Cost per unit per annum = 12% x ₹ 300 = ₹ 36 p.u.p.a. (given)

On substitution, $EOQ = 3,000 \text{ units} = ROQ$.

2. Re-order Level	= Maximum Usage x Maximum Lead Time = 400 x 20	= 8,000 units
3. Minimum Level	= ROL = (Average Usage x Average Lead Time) = 8,000 - (300 x 14)	= 3,800 units
4. Maximum Level	= ROL + ROQ - (Min Usage x Min. Lead Time) = 8,000 + 3,000 - (200 x 8)	= 9,400 units
5. Danger Level	= Average Consumption during Emergency Period = 300 units x 5 days	= 1,500 units

(1 Mark for each)

2.

Solution:

1. Basic Computations

(a) Standard Output per day = 8 hours x 2 units x 6 days = **96 units.**

(b) Wage Rate per hour (Time Rate) = $\frac{₹ 360}{8 \text{ hours}} = ₹ 45 \text{ per hour.}$

(c) Wage Rate per unit (Piece Rate) = $\frac{₹ 360}{8 \text{ hours} \times 2 \text{ units}} = ₹ 22.50 \text{ per unit.}$

2. Statement of Workers' Earnings

Workers	A	B	C
Standard Output (WN 1)	96 units	96 units	96 units
Actual Output	132 units	108 units	96 units
Efficiency (%)	$\frac{132 \text{ units}}{96 \text{ units}} \times 100 = 137.5\%$	$\frac{108 \text{ units}}{96 \text{ units}} \times 100 = 112.5\%$	$\frac{96 \text{ units}}{96 \text{ units}} \times 100 = 100\%$
Daily wages Rate	₹ 360	₹ 360	₹ 360
Incentive System	Emerson's System	Merrick's System	Taylor's System
Payment Rate	(120% + 37.5%) = 157.5% of Time Rate	20% above Normal Piece Rate of 22.5 = ₹ 27 pu	25% above Normal Piece Rate of 22.5 = ₹ 28.125 pu
Total Earnings	(8 hours x 6 days x ₹ 45 x 157.5%) = ₹ 3,402	(108 units x ₹ 27 p.u.) = ₹ 2,916	(96 units x ₹ 28.125 pu) = ₹ 2,700

(½ marks for each working)

3. (1 mark for each calculation)

Solution:

Product Nature	A	B	Total
	Main Product	By-Product	
Sales Value (given)	16,000	8,000	24,000
Less: Profit Margin (based on % given)	4,000	1,600	5,600
Cost of Sales	12,000	6,400	18,400
Less: S & D Overheads [See Note]	267	133	(bal.fig.) 400
Cost of Production	11,733	6,267	18,000
Less: Further Processing Costs (given)	5,000	3,000	8,000
Net Balance	6,733	3,267	(given) 10,000
This Net Balance represents	Cost Share of Main Pdt	NRV of By Product	Joint Costs

Note:

- In the Total Column, since Joint Costs are given, S & D OH constitutes the balancing figure, which is apportioned to Products A & B in 2:1 Sales Ratio.
- Thereafter, Costs of Production are derived and NRV of By-Products are determined.
- Balance Joint Costs are identified with the Main Product (i.e. 10,000 – 3,267 = ₹ 6,733).

4. (1 mark for each variance)

Solution:

1. Basic Calculations

Given that Time required for 25 units = 1 hour × 100 workers = 100 Direct Labour Hours.

Hence, for Actual Output of 1,040 units, Standard Hours = $\frac{1,040 \text{ units}}{25 \text{ units}} \times 100 \text{ hours} = 4,160 \text{ Labour Hours}$.

Also, Productive Hours (Net AH) = 95% of Hours Worked = 95% of (100 × 42) hours.

2. Variance Computation Chart

Col. (1): SH × SR	Col. (2): Net AH × SR	Col. (3): AH × SR	Col. (4): AH × AR
(See Note 1) 4,160 hrs × ₹ 6 = ₹ 24,960	(100 × 42 × 95%) × ₹ 6 = ₹ 23,940	(100 × 42) × ₹ 6 = ₹ 25,200	(10 × 42) × ₹ 6.20 + (30 × 42) × ₹ 6.00 + (60 × 42) × ₹ 5.70 = ₹ 24,528
<p>Labour Efficiency Variance = ₹ 24,960 – ₹ 23,940 = ₹ 1,020 F</p> <p>Labour Idle Time Variance = ₹ 23,940 – ₹ 25,200 = ₹ 1,260 A</p> <p>Labour Rate Variance = ₹ 25,200 – ₹ 24,528 = ₹ 672 F</p> <p>Total Labour Cost Variance = ₹ 24,960 – ₹ 24,528 = ₹ 432 F</p>			

Note: Sometimes, Gross and Net Efficiency Variance may be differentiated and shown separately.

Q. 2. (A) (1 mark for each working)

Particulars	Last Yr Actuals	Computation	Next Yr Estimate
Direct Materials (Note)	18,00,000	Given	8,00,000
Direct Labour	9,50,000	Given	4,50,000
Prime Cost	27,50,000	Total of above	12,50,000
Add : POH	3,80,000	$\frac{POH}{Labour} = \frac{2,50,000}{31,30,000} = 40\% \text{ of Labour}$	40% of 4,50,000 = 1,80,000
Factory Cost	31,30,000	Total of above	14,30,000
Add : AOH related to Prodn	2,50,000	$\frac{AOH}{Labour} = \frac{2,50,400}{31,30,000} = 8\% \text{ of Fy. Cost}$	8% of 14,30,000 = 1,14,400
Cost of Production	33,80,400	Total of above	15,44,000
Add : SOH = Delivery Costs		Given	45,000
Cost of Sales		Total of Cost as above	15,89,400
Add: Profit		1/10 th on sales = 1/9 th on cost =	1,76,000
Sale Price			17,66,000

Note : Direct Materials Consumed in Last year = Opening Stock + Purchase (-) Closing Stock
= ` 1,50,000 + ` 18,50,000 - ` 2,00,000 = ` 18,00,000

(B) (2 marks for each working)

Solution:

1. Summary of Overheads: The Expenses to be apportioned are as under –

- Legal Department: Fixed ₹ 7,20,000 and Variable ₹ 4,00,000 ₹ 11,20,000
- Personnel Department: Fixed ₹ 9,50,000 and Variable ₹ 12,00,000 ₹ 21,50,000
- Hence Grand Total of Expenses to be apportioned = ₹ 32,70,000

2. Apportionment of Fixed Expenses

Let Fixed Expenses of Legal and Personnel Departments be ₹ A and ₹ B respectively. Hence, the simultaneous equations for Fixed Expenses are framed as under –

$$A = 7,20,000 + 5\% B. \quad \text{So,} \quad A = 7,20,000 + \frac{1}{20} B \dots\dots\dots \text{Equation 1}$$

$$B = 9,50,000 + 10\% A. \quad \text{So,} \quad B = 9,50,000 + \frac{1}{10} A \dots\dots\dots \text{Equation 2}$$

Substituting the value of A in Equation 2, we have,

$$B = 9,50,000 + \frac{1}{10} (7,20,000 + \frac{1}{20} B).$$

On simplification, $B = 9,50,000 + 72,000 + \frac{1}{200} B$

$$B - \frac{1}{200} B = 10,22,000. \quad \text{So,} \quad \frac{199}{200} B = 10,22,000. \quad \text{Hence,} \quad B = 10,22,000 \times \frac{200}{199} = 10,27,136.$$

Substituting the value of B in Equation 1, $A = 7,20,000 + (\frac{1}{20} \times 10,27,136) = 7,71,357.$

3. Apportionment of Variable Expenses

Let Variable Expenses of Legal and Personnel Departments be ₹ X & ₹ Y respectively. Hence, the simultaneous equations for Variable Expenses are as under –

$$X = 4,00,000 + 5\% Y. \quad \text{So,} \quad X = 4,00,000 + \frac{1}{20} Y \dots\dots\dots \text{Equation 1}$$

$$Y = 12,00,000 + 20\% X. \quad \text{So,} \quad Y = 12,00,000 + \frac{1}{5} X \dots\dots\dots \text{Equation 2}$$

Substituting the value of X in Equation 2, we have,

$$Y = 12,00,000 + \frac{1}{5} (4,00,000 + \frac{1}{20} Y).$$

On simplification, $Y = 12,00,000 + 80,000 + \frac{1}{100} Y$

$$Y - \frac{1}{100} Y = 12,80,000 \quad \text{So,} \quad \frac{99}{100} Y = 12,80,000 \quad \text{Hence,} \quad Y = 12,80,000 \times \frac{100}{99} = 12,92,929.$$

Substituting the value of Y in Equation 1, $X = 4,00,000 + (\frac{1}{20} \times 12,92,929) = 4,64,646.$

4. Secondary Distribution Summary

Particulars	MCD	PED	Legal	Personnel	Total
Overhead as apportioned and given	-	-	11,20,000	21,50,000	32,70,000
Re-apportionment:					
Legal: Fixed Expenses (60%, 30%, 10%)	4,62,814	2,31,407	(7,71,357)	77,136	-
Legal: Variable Expenses (20%, 60%, 20%)	92,929	2,78,788	(4,64,646)	92,929	-
Personnel: Fixed Expenses (45%, 50%, 5%)	4,62,211	5,13,568	51,357	(10,27,136)	-
Personnel: Variable Exps (66.5%, 28.5%, 5%)	8,59,798	3,68,485	64,646	(12,92,929)	-
Total OH	18,77,752	13,92,248	Nil	Nil	32,70,000

Note: Fixed Expenses are apportioned based on Budgeted Capacity Ratio, and Variable Expenses are apportioned based on Actual Usage Ratio.

Q. 3.(A) (1 – 2 marks, 2 – 3 marks, 3 – 3 marks)

Solution:

1. Income Statement under Variable Costing

Particulars	March	April
Selling Price per unit	₹ 24,000	₹ 24,000
Less: Manufacturing Costs per unit	₹ 10,000	₹ 10,000
Less: Distribution Cost per unit	₹ 3,000	₹ 3,000
Contribution per unit	₹ 11,000	₹ 11,000
Sale Quantity for the month	350 units	520 units
Total Contribution earned	₹ 38,50,000	₹ 57,20,000
Less: Total Fixed Cost	₹ 26,00,000	₹ 26,00,000
Operating Profit	₹ 12,50,000	₹ 31,20,000

2. Income Statement under Absorption Costing

Particulars	March	April
Manufacturing Cost: Variable	(500 units × ₹ 10,000) = 50,00,000	(400 units × ₹ 10,000) = 40,00,000
Fixed	(500 units × ₹ 4,000) = 20,00,000	(400 units × ₹ 5,000) = 20,00,000

Particulars	March	April
Total Manufacturing Cost	(500 units × ₹ 14,000) = 70,00,000	(400 units × ₹ 15,000) = 60,00,000
Add: Beginning Inventory	-	(150 units × ₹ 14,000) = 21,00,000
Factory Cost of Goods available for Sale	70,00,000	81,00,000
Less: Closing Inventory (See Note)	(150 units × ₹ 14,000) = 21,00,000	(30 units × ₹ 15,000) = 4,50,000
Manufacturing Cost of Goods Sold	(for 350 units) = 49,00,000	(for 520 units) = 76,50,000
Add: Variable Distribution Costs	10,50,000	15,60,000
Add: Fixed Marketing Costs	6,00,000	6,00,000
Cost of Sales	65,50,000	98,10,000
Add: Profit (balancing figure)	18,50,000	26,70,000
Sales at ₹ 24,000 per vehicle	(350 units × ₹ 24,000) = 84,00,000	(520 units × ₹ 24,000) = 1,24,80,000

Note: Closing Inventory Quantity = Opening Stock + Production – Sale Qty
 For March: Nil + 500 – 350 = 150 units.
 For April: 150 + 400 – 520 = 30 units.

In Absorption Costing, Closing Inventory is valued at Current Total Manufacturing Cost (FIFO Basis).

3. Reason for difference in Profit: Difference between Operating Profits under Variable Costing and Absorption Costing is due to the inclusion of Fixed Manufacturing Cost in Inventory Valuation. Under Absorption Costing, Inventory is valued at Total Manufacturing Cost, which includes Fixed Cost component. So, we have –

Profit under Absorption Costing	=	Fixed Manufacturing Cost in Closing Inventory
Less: Profit under Variable Costing		Less: Fixed Manufacturing Cost in Opening Inventory

The reconciliation is as under –

Particulars	March	April
Profits under Marginal Costing	₹ 12,50,000	₹ 31,20,000
Add: Fixed Mfg Costs included in Closing FG	(150 units × ₹ 4,000) = 6,00,000	(30 units × ₹ 5,000) = 1,50,000
Sub-Total	₹ 18,50,000	₹ 32,70,000
Less: Fixed Mfg Costs included in Opening FG	Nil	(150 units × ₹ 4,000) = 6,00,000
Profits under Absorption Costing	₹ 18,50,000	₹ 26,70,000

Note: If Fixed Manufacturing Costs are included in Closing Inventory Valuation, to that extent, Closing Inventory Value and hence Profits will be higher under Absorption Costing. Hence, this amount is added to the Profits under Marginal Costing. The reverse will be the case in case of Opening Inventory Valuation.

(B)

1. Production Budget (1 mark)

Particulars	Product A	Product B
Sales (for 4 weeks x 5 days = 20 days)	(Given) 2,400 units	(Given) 3,600 units
Add: Closing Stock (for 15 and 20 days)	$2,400 \times \frac{4}{20} = 480$ units	$3,600 \times \frac{5}{20} = 900$ units
Sub-Total	2,880 units	4,500 units
Less: Opening Stock	(Given) 400 units	(Given) 200 units
Budgeted Production	2,480 units	4,300 units

2. Material Purchase Budget (3 marks)

Particulars	Material X	Material Y
Budgeted Raw Materials Usage (for 20 days)		
Product A	2,480 units x 5 kg = 12,400 4,300	2,480 units x 4 kg = 9,920 4,300
Product B	units x 3 kg = 12,900	units x 6 kg = 25,800
Sub Total of above = RM Usage	25,300	35,720
Add: Closing Stock	$25,300 \text{ kg} \times \frac{10}{20} = 12,650$ 20	$35,720 \text{ kg} \times \frac{6}{2} = 10,716$ 20
Sub-Total	37,950	46,436
Less: Opening Stock of Raw Materials	(1,000)	(500)
Budgeted Purchases	36,950	45,936
Rate per Kg of Material	₹ 4	₹ 6
Total Cost of Materials Purchase	₹ 1,47,800	₹ 2,75,616

3. Labour Hours and Cost Budget (4 marks)

Particulars	Product A	Product B
Standard Hours for Budgeted Production	2,480 units x 3 = 7,440 hrs	4,300 units x 5 = 21,500 hrs
Revised Hours for Production at 80% efficiency	$\frac{7,440 \text{ hours}}{80\%} = 9,300$	$\frac{21,500 \text{ hours}}{80\%} = 26,875$
Add: Non-Productive Downtime	20% of 9,300 hrs = 1,860 hrs	20% of 26,875 hrs = 5,375 hrs
Hours Required to be worked / paid for	11,160 hrs	32,250 hrs
Sub-Total		43,410 hrs
Less: Normal Working Hours		4 weeks x 40 hrs x 180 workers = (28,800 hrs)
Balance Overtime Hours required		14,160 hrs
Total Wages Payable		$(28,800 \text{ hrs} \times ₹ 25) + (14,160 \text{ hrs} \times ₹ 37.5) = ₹ 12,67,875$

Q.4. (A)

1. Basic Computations (2 marks)

Particulars	A	B	C	D	Total
(a) Good Output (number of units) (given)	720	600	480	504	
(b) Average Yield (given)	80%	80%	96%	90%	
(c) Input (a ÷ b)	900	750	500	560	
d) Machine hours p.u. of input (given)	4	3	2	1	
(e) Total Machine Hours required (c x d)	3,600	2,250	1,000	560	7,410
(f) No. of Material Requisitions (c) ÷ 25	36	30	20	22.40	108.40
(g) No. of Prodn Runs (i.e. Set-ups) (a) ÷ 24	30	25	20	21	96
(h) No. of Boxes	$(720 \div 24)$	$(600 \div 24)$	$(480 \div 12)$	$(504 \div 12)$	

(i) Box Cost / Quantity Ratio	1	1	0.5	0.5	
(j) Equivalent No. of Big Boxes (h x i)	30	25	20	21	96

2. Computation of ABC Recovery Rates (3 marks)

Activity	Activity Pool	Cost Driver	Cost Driver Quantity	ABC Rate
M/c Operation & Maintenance	₹ 66,375	Machine hours	7,410 Machine Hours	₹ 8.957 per m/c hour
Setup	₹ 19,200	No. of Production Runs	96 Batches	₹ 200 per Batch
Stores Receiving	₹ 21,400	Material Requisition	108.40 Material Requisitions	₹ 197.42 per Material Requisition
Inspection	₹ 24,000	No. of Production Runs	96 Batches	₹ 250 per Batch
Finished Goods Packing	₹ 14,400	No. of Equivalent Boxes	96 Equivalent Boxes	₹ 150 per Equi. Box

Note: In respect of Finished Goods Packing, Cost per Big Box for A and B (24 units) = ₹ 150 per box, and Cost per Small Box for C and D (12 units) = ₹ 150 ÷ 2 = ₹ 75 per box.

3. Cost Statement under Activity Based Costing (₹) (3 marks)

Product	A	B	C	D	Total
Machine Operation	3,600 x 8.957 = 32,246	2,250 x 8.957 = 20,154	1,000 x 8.957 = 8,957	560 x 8.957 = 5,018	66,375
Setup	30 x 200 = 6,000	25 x 200 = 5,000	20 x 200 = 4,000	21 x 200 = 4,200	19,200
Stores Receiving	36 x 197.42 = 7,107	30 x 197.42 = 5,923	20 x 197.42 = 3,948	22.40 x 197.42 = 4,422	21,400
Inspection	30 x 250 = 7,500	25 x 250 = 6,250	20 x 250 = 5,000	21 x 250 = 5,250	24,000
Fin. Goods Packing	30 x 150 = 4,500	25 x 150 = 3,750	20 x 150 = 3,000	21 x 150 = 3,150	14,400
Total Overhead Cost	₹ 57,353	₹ 41,077	₹ 24,905	₹ 22,040	₹ 1,45,375
Good Output	720 units	600 units	480 units	504 units	
Overhead Rate p.u.	₹ 79.66	₹ 68.46	₹ 51.89	₹ 43.73	

(B)

Solution: 1. Stores Ledger Control Account (1 mark)

Particulars	₹	Particulars	₹
To balance b/d - given	40,950	By WIP Control - issued to Production	2,50,250
To Cash / Bank / Creditors A/c (RM Purchases)	2,27,500	By POH Control - issued for Repairs	4,550
Total	2,68,450	Total	2,68,450

2. Wages Control Account (1 mark)

Particulars	₹	Particulars	₹
To Cash / Bank (1,97,925 + 11,375)	2,09,300	By WIP Control - Direct Wages	1,97,925
		By POH Control - Indirect Wages	11,375
Total	2,09,300	Total	2,09,300

3. POH Control Account (2 marks)

Particulars	✓	Particulars	✓
To Stores Ledger Control- Repairs	4,550	By balance b/d (Payable at beginning) (given)	6,250
To Wages Control - Indirect Wages	11,375	By WIP Control - POH absorbed (given)	1,09,200
To Cash / Bank / - POH paid (given)	91,000	By P8iL A/c (underabsorbed POH w/ off) (b/f)	14,039
To Provision for Depreciation (given)	14,789		
To balance c/d (Payable at year-end) (given)	7,775		
Total	1,29,489	Total	1,29,489

4. WIP Control Account (2 marks)

Particulars	✓	Particulars	✓
To balance b/d - given	38,675	By Finished Goods Control - Production transfer	4,89,125
To Raw Material Control - RM Consumed	2,50,250		
To Wages Control - Direct Wages	1,97,925	By balance c/d - Closing WIP (bal.fig)	1,06,925
Total	5,96,050	Total	5,96,050

5. AOH Control Account (1 mark)

Particulars	✓	Particulars	✓
To balance b/d - Prepaid AOH - given	9,975	By Finished Goods Control-AOH absorbed (b/f)	39,500
To Cash / Bank - AOH paid	27,300	(assumed as related to Production Activity)	
To balance c/d (Payable at year-end) (given)	2,225	(if not, this is transferred to Cost of Sales A/c)	
Total	39,500	Total	39,500

6. Finished Goods Control Account (1 mark)

Particulars	✓	Particulars	✓
To balance b/d - given	52,325	By Cost of Sales A/c - transfer (given)	5,00,500
To WIP Control - Production transfer	4,89,125	By balance c/d- Closing FG (balancing figure)	80,450
Total	5,80,950	Total	5,80,950

Q. 5. (A)

i) (4 marks)

Under Cost plus Contract, the contract price is ascertained by adding a percentage of profit to the total cost of the work. Such types of contracts are entered into when it is not possible to estimate the contract cost with reasonable accuracy due to unstable condition of factors that affect the cost of material, labour services, etc. Cost plus contracts have the following advantages and disadvantages:

Advantages:

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

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

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

Disadvantages

The contractor may not have any inducement to avoid wastages and effect economy in production to reduce cost

Escalation Clause - If during the period of execution of a contract, the prices of materials, or labour etc., rise beyond a certain limit, the contract price will be increased by an agreed amount. Inclusion of such a clause in a contract deed is called an "Escalation Clause".

ii) (4 marks)

It may be defined as "the increase or decrease in total cost or the change in specific elements of cost that result from any variation in operations". It represents an increase or decrease in total cost resulting out of:

- (a) producing or distributing a few more or few less of the products;
- (b) a change in the method of production or of distribution;
- (c) an addition or deletion of a product or a territory; and
- (d) selection of an additional sales channel.

Differential cost, thus includes fixed and semi-variable expenses. It is the difference between the total costs of two alternatives. It is an ad-hoc cost determined for the purpose of choosing between competing alternatives, each with its own combination of income and costs.

(B) 1. Contract No.999 Account for the year ended 31st March (6 marks)

Particulars	₹	Particulars	₹
To balance b/d - Work Certified	12,00,000	By Work in Progress - Work Certified	35,00,000
- Work Uncertified	20,000	- Work Uncertified	40,000
To Material at Site b/d	15,000	By Materials Returns - Stores	30,000
To Material issued	5,00,000	- Supplier	20,000
To Materials directly purchased	1,60,000		

Particulars	₹	Particulars	₹
To Wages (7,00,000 + 20,000 - 10,000)	7,10,000	Note: It is assumed that Materials are returned to Supplier, directly from the Site itself.	
To Drawings and Maps	60,000	By balance c/d - Material at site	30,000
To Sundry Expenses	15,000		
To Electricity Charges	25,000		
To Plant Hire Charges	60.0		
To Sub-Contract Cost	20,000		
To Notional Profit - balancing figure	8,35,000		
Total	36,20,000	Total	36,20,000
To Profit & Loss A/c - transfer (Note b)	4,17,500	By Notional Profit b/d	8,35,000
To Reserve Profit c/d - balancing figure	4,17,500		
Total	8,35,000	Total	8,35,000
To WIP b/d	35,40,000	By Reserve Profit b/d	4,17,500
To Material at Site b/d	30,000		

Note:

$$a) \text{ Percentage of Completion} = \frac{\text{Work Certified}}{\text{Contract Price}} = \frac{35,00,000}{50,00,000} = 70\%$$

$$(b) \text{ So, Profit transferred to P\&L A/c} = \frac{2}{3} \times \text{Notional Price} \times \frac{\text{Cash Received}}{\text{Work Certified}} = \frac{2}{3} \times 8,35,000 \times 75\% = 4,17,500$$

2. Contractee's A/c (2 marks)

Particulars	₹	Particulars	₹
To balance c/d (bal. figure)	26,25,000	By balance b/d (80% of Work Certified on Opening Date) By Bank [75% of (₹ 35,00,000 - ₹ 12,00,000)]	9,00,000
Total	26,25,000	Total	26,25,000

Q.6. (A)

Profitability Statement (in ₹ Lakhs) (3 marks)

Particulars	Cars	Insurance	Finance	Total
Sales Value	30,000.00	1,500.00	19,200.00	50,700.00
Revenue Earnings at 3%,20%,2%	900.00	300.00	384.00	1,584.00

Less: Direct Costs			
Sales Exp (5,000 x 10,000 Cars)	500.00		500.00
Documentation (100 x 6,000)		6.00	6.00
Documentation (200 x 8,000)			16.00

(5 marks)

Particulars	Cars	Insurance	Finance	Total
Gross Profit	400.00	294.00	368.00	1,062.00
Less: Indirect Costs (in 10 : 6 : 8)				
Salesman Salaries	83.33	50.00	66.67	200.00
Rent	41.67	25.00	33.33	100.00
Electricity	41.67	25.00	33.33	100.00
Advertising	83.33	50.00	66.67	200.00
Net Profit	150.00	144.00	168.00	462.00
% of Net Profit to Revenue Earnings	16.67%	48.00%	43.75%	29.16%

(B)

1. Machining Process (4 marks)

Item	Input	Item	Output	Materials		Labour		Overhead	
				%	EU	%	EU	%	EU
Input	90,000	Tfr out	60,000	100%	60,000	100%	60,000	100%	60,000
		Clg WIP	30,000	100%	30,000	2/3 rd	20,000	2/3 rd	20,000
Total	90,000	Total	90,000		90,000		80,000		80,000
Costs incurred					2,70,000		1,28,000		64,000
Costs per equivalent unit					3.00		1.60		0.80
Cost of Production (EU x Rate per unit)					60,000 x 3 = 1,80,000		60,000 x 1.6 = 96,000		60,000 x 0.8 = 48,000
Cost of Closing Work-in-Progress					30,000 x 3 = 90,000		20,000 x 1.6 = 32,000		20,000 x 0.8 = 16,000

Total Cost of Production = 1,80,000 + 96,000 + 48,000 = 3,24,000. (1/2 mark)

Total Cost of Closing WIP = 90,000 + 32,000 + 16,000 = 1,38,000. (1/2 mark)

(2 mark)

Particulars	Input	Particulars	Output	Labour		Overheads	
				%	E.U	%	
Input	60,000	Transfer out	60,000	100%	60,000	100%	60,000
Cost incurred					45,000		1,35,000
Cost per equivalent unit ()					0.75		2.25
Cost of Production					45,000		1,35,000

Total Cost of Production = Machining 3,24,000 + Finishing 1,80,000 = 5,04,000.

Hence Cost per unit of production = 5,04,000 ÷ 60,000 units = 8.40 per unit. (1 mark)

Alternatively Cost p.u. = 3.00 + 1.60 + 0.80 + 0.75 + 2.25 = 8.40 per unit (based on cost per EU)

Q. 7. (A)

i) The Main objectives of Cost Accounting are (4 marks)

1. Ascertainment of cost.
2. Determination of selling price.
3. Cost control and cost reduction.

4. Ascertaining the project of each activity.
5. Assisting management in decision-making.

ii) (4 marks)

Work done beyond normal working hours is known as overtime work. Overtime payment is the amount of wages paid for working beyond normal working hours. The rate for overtime work is higher than the normal time rate; usually it is at double the normal rates. The extra amount so paid over the normal rate is called overtime premium. Overtime work should be resorted to only when it is extremely essential because it involves extra cost. The overtime payment affects to increase the cost of production in the following ways:

- (1) The premium paid is an extra payment in addition to the normal rate.
- (2) The efficiency of operators during overtime work may fall and thus the output may be lesser than normal output.
- (3) In order to earn more the workers may not concentrate on work during normal time and thus the output during normal hours may also fall.
- (4) Reduced output and increased premium will bring about an increase in costs of production.

Under cost accounting the overtime premium is treated as follows:

- (i) If overtime is resorted to, at the desire of the customer, then overtime premium may be charged to the job directly.
- (ii) If overtime is due to a general pressure of work to increase the output, the premium may be charged to general overheads.
- (iii) If overtime is due to the negligence or delay, it may be charged to the department concerned.
- (iv) If it is due to circumstances beyond control, e.g. fire, strike etc. it may be charged to

Costing Profit and Loss Account.

b.

1. Cost of Goods Sold (COGS) = Material + Labour + FOH + General & AOH
 So, COGS = (30% + 15% + 10% + 2%) = 57% of COGS + 2,30,000 + 71,000
 So, 0.43 COGS = 3,01,000. Hence, COGS = $\frac{3,01,000}{0.43} = 7,00,000$ (1 mark)

2. Cost of Sales (COS) = COGS + S&D OH
 So, COS = 7,00,000 + 4% of COS + 68,000
 So, 96% COS = 7,68,000. So, COS = $\frac{7,68,000}{96\%} = 8,00,000$ (1 mark)

3. Variable and Fixed Costs: (1 mark)

Particulars	Variable Cost (₹)	Fixed Cost (₹)
Direct Material	7,00,000 x 30% = 2,10,000	-
Direct Labour	7,00,000 x 15% = 1,05,000	-
Factory Overhead	7,00,000 x 10% = 70,000	2,30,000
General & Administration OH	7,00,000 x 2% = 14,000	71,000
Selling & Distribution OH	8,00,000 x 4% = 32,000	68,000
Total	4,31,000	3,69,000

4. PV Ratio = $\frac{\text{Contribution}}{\text{Sales}} \times 100 = \frac{\text{Sales} (-) \text{Variable Costs}}{\text{Sales}} \times 100 = \frac{(185 \times 5,000 \text{ units}) (-) 4,31,000}{(185 \times 5,000 \text{ units})} \times 100 = 53.41\%$ (1 mark)

5. Computations: (4 marks)

- (a) Break – Even Sales = $\frac{\text{Fixed Costs}}{\text{PVR}} = \frac{3,69,000}{53.41\%} = ₹ 6,90,882$.
- (b) Profit earned during the last year = (Sales - Total Variable Costs) - Total Fixed Costs
 = (₹ 9,25,000 - ₹ 4,31,000) - ₹ 3,69,000 = ₹ 1,25,000
- (c) Margin of Safety (%) = $\frac{\text{Total Sales} (-) \text{BES}}{\text{Total Sales}} = \frac{9,25,000 (-) 6,90,882}{9,25,000} = 25.31\%$

(d) Profit if the Sales were 10% less than the Actual Sales: (Assumed 10% reduction in Sale Qty).
Profit = 90% of (` 9,25,000 - ` 4,31,000) - ` 3,69,000 = ` 4,44,600 - ` 3,69,000 = ` 75,600