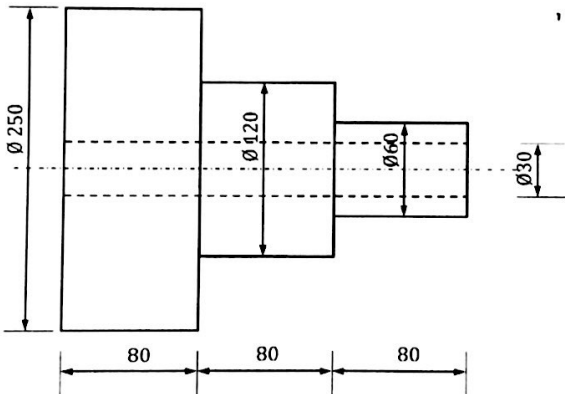


Internal Assessment Test - II

Sub:	ENGINEERING ECONOMY	Code:	10ME71
Date:	09 / 11 / 17	Duration:	90 mins
	Max Marks:	50	Sem: VII
	Branch:	Mech	

Answer Any Five Questions

		Marks	OBE														
			CO	RBT													
1.	(a) Explain objectives of costing and briefly explain Standard cost, Marginal cost and components of cost.	[05]	CO1	L1													
	(b) Explain why Costing and Estimation is necessary and with a neat diagram explain how selling price of a product is determined.	[05]	CO1	L1													
2.	Determine the material cost for figure shown below if density is 7.009g/cc and material cost is Rs 20/Kg 	[10]	CO2	L3													
3. a)	Differentiate costing and estimation.	[10]	CO3	L4													
b)	From the following data related to manufacturing a product, calculate profit earned on each unit. <table border="1" style="width: 100%; border-collapse: collapse; margin-left: 20px;"> <tr> <td style="padding: 2px;">Raw materials used</td> <td style="padding: 2px;">Rs.40,000/-</td> </tr> <tr> <td style="padding: 2px;">Direct wages</td> <td style="padding: 2px;">Rs.24,000/-</td> </tr> <tr> <td style="padding: 2px;">Machine hours worked</td> <td style="padding: 2px;">9,500hrs</td> </tr> <tr> <td style="padding: 2px;">Machine hour rate</td> <td style="padding: 2px;">Rs.4 per hour</td> </tr> <tr> <td style="padding: 2px;">Office overheads</td> <td style="padding: 2px;">20% of work cost</td> </tr> <tr> <td style="padding: 2px;">Selling overheads</td> <td style="padding: 2px;">Rs.1 per unit</td> </tr> <tr> <td style="padding: 2px;">Units produced</td> <td style="padding: 2px;">20,000</td> </tr> <tr> <td style="padding: 2px;">Units sold</td> <td style="padding: 2px;">18,000 at Rs.10 per unit</td> </tr> </table>				Raw materials used	Rs.40,000/-	Direct wages	Rs.24,000/-	Machine hours worked	9,500hrs	Machine hour rate	Rs.4 per hour	Office overheads	20% of work cost	Selling overheads	Rs.1 per unit	Units produced
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4.a)	What is Financial planning and Profit planning? List and explain the essentials of Financial planning.	[5]	CO3	L6													
b)	Discuss types of budget and briefly explain flexible and fixed budget.	[5]															

5.	<p>A person wants to buy home theatre system. He estimates it will last for 10 years. And after that, it will not have any salvage value. Showroom offers him two alternatives to pay. Choose the best by AEW method. (ROI=12%)</p> <p>i) Pay Rs 1,00,000 immediately and Rs 50,000 at the end of 2nd year.</p> <p>ii) Pay nothing until end of 4 years and make a single payment of Rs 2,50,000.</p>	[10]	CO1	L3																								
6.	<p>Draw a flexible budget for the following data for an efficiency of 100%, 80%, 60% plant capacity. The details of 100% efficiency is given below. Calculate cost per unit for different levels of activity. If the plant works with full efficiency, it can produce 12,000 units/month.</p> <table border="1" data-bbox="247 548 1077 739"> <thead> <tr> <th>Particulars</th> <th>Cost/Unit(RS)</th> <th>Particulars</th> <th>Cost/Unit(RS)</th> </tr> </thead> <tbody> <tr> <td>Material</td> <td>50</td> <td>VOH</td> <td>14</td> </tr> <tr> <td>Labour</td> <td>45</td> <td>Administration</td> <td>50,000 (All fixed)</td> </tr> <tr> <td>Expenses</td> <td>12</td> <td>Insurance</td> <td>20,000</td> </tr> <tr> <td>Power (20% fixed)</td> <td>70</td> <td>Salary</td> <td>75,000</td> </tr> <tr> <td>Maintenance (40% fixed)</td> <td>75</td> <td></td> <td></td> </tr> </tbody> </table>	Particulars	Cost/Unit(RS)	Particulars	Cost/Unit(RS)	Material	50	VOH	14	Labour	45	Administration	50,000 (All fixed)	Expenses	12	Insurance	20,000	Power (20% fixed)	70	Salary	75,000	Maintenance (40% fixed)	75			[10]	CO2	L5
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1a) Costing helps in determining Cost Incurred during production of goods.

- > It helps in controlling Costs during Manufacturing.
- > Cost Controlling
- > Managerial decisions.

> Standard Cost:-

It is estimated Cost that is fixed and kept as a target Cost, determined by historical analysis of previous Cost.

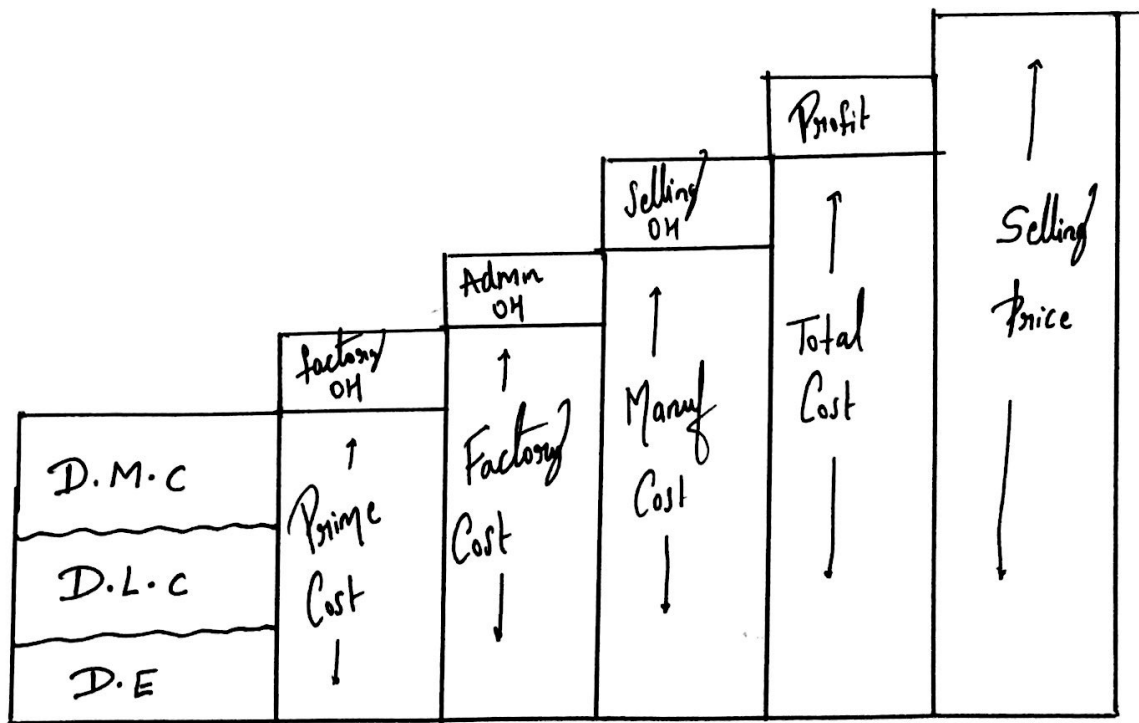
> Marginal Cost:-

It is the rate of change of Cost which arises when production is increased by one unit.

> Components of Cost:-

- > Material Cost
- > Labour Cost
- > Fixed Cost
- > Variable Cost.

- 16) Costing and estimation is necessary because
- > It helps the Manufacturer to find total Cost Incurred to Manufacture a product so Selling price can be fixed.
 - > Can detect loss of time wastage in Raw materials.
 - > Manufactures knows which process is expensive. so he can select an alternative method.
 - > Profit & loss can be predicted.



2A)

$$\rho = 7.009 \text{ g/cm}^3$$

$$\text{Material Cost} = ₹ 20/\text{kg}$$

$$\text{Volume } V_A = \frac{\pi (d^2)}{4} \times h$$

$$= \frac{\pi (250 \times 10^{-1})^2}{4} \times 80 \times 10^{-1}$$

$$= \underline{3926.9 \text{ CC}}$$

$$V_B = \frac{\pi}{4} \times (80) \times 120^2 = 904.778 \text{ CC}$$

$$V_C = \frac{\pi}{4} (80) \times 60^2 = 508.93 \text{ CC}$$

$$V_D = \frac{\pi}{4} (240) \times 30^2 = 169.64 \text{ CC}$$

$$\text{Total Volume } V_T = V_A + V_B + V_C - V_D$$

$$= 3926.9 + 904.7 + 508.9 - 169.64$$

$$= \underline{4888.31 \text{ CC}}$$

$$\text{Mass} = \rho \times V$$

$$= 7.09 \times 4888.3$$

$$= \underline{34.26 \text{ kg}}$$

Material

$$\text{Cost} = 34.26 \times 20$$

$$= \underline{₹ 685/-}$$

3(a)	Costing	Estimation
① ② ③	Done after goods are Manufactured Requires financial skills, prepared by accounting people Keeps track of estimation, knows when it will fall or rise	① Done before product is Manufactured ② person should have knowledge about Material Cost. ③ Deciding factor for determining Profit or loss.

3(b)

$$D.M.C = ₹40,000$$

$$\begin{aligned} > \text{Prime Cost} &= 40,000 + 25,000 \\ &= ₹65,000 \end{aligned}$$

$$\begin{aligned} > \text{Factory Cost} &= \text{Prime Cost} + \text{production overhead.} \\ &= 65,000 + (9500 \times 4) = 10,2000/- \end{aligned}$$

$$\begin{aligned} > \text{Manufacturing Cost} &= \text{Factory Cost} + \text{Admin } 0.4 \\ &= 102000 + 0.2 \times (102000) \\ &= ₹122400/- \end{aligned}$$

$$\begin{aligned} > \text{Total Cost} &= \text{Manuf Cost} + \text{Selling } 04 \\ &= 122400 + (18000) \\ &= ₹140400/- \end{aligned}$$

$$> \text{Closing Cost} = \frac{2000 \times 122400}{200000}$$

$$= \underline{\underline{£ 12240/-}}$$

$$\therefore \text{Total Cost} = 140400 - 12240$$

$$= \underline{\underline{£ 128160/-}}$$

$$\text{Profit} = \text{S.p} - \text{T.C}$$

$$= (18000 \times 10) - 128160$$

$$= 51840/-$$

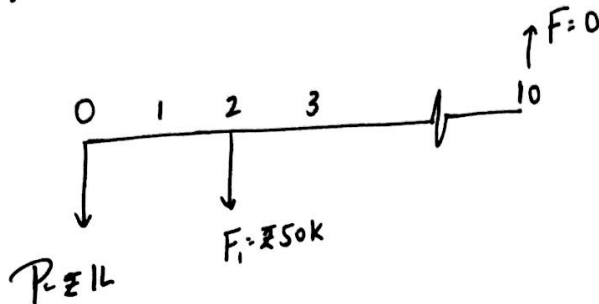
$$\text{Profit per unit} = \underline{\underline{£ 2.88}}$$

5A)

$n = 10 \text{ years}$

$i = 12\%$

Alt (1) \rightarrow



Converting F to P

$$P = F \cdot (P/F, i\%, n)$$

$$= 50,000 (P/F, 12\%, 2)$$

$$\Rightarrow ₹39,860/-$$

$$P = 1,39,860/-$$

Annual equivalent

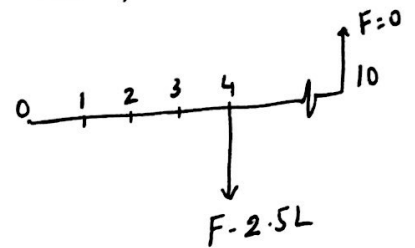
$$A = P \cdot (A/P, 12\%, 10)$$

$$A = 1,39,860 (0.1770)$$

$$A = ₹24,755.22$$

Alt 1 is better.

Alt (2)



$$P = F \cdot (P/F, 12\%, 4)$$

$$P = 2,50,000 (0.6355)$$

$$P = ₹1,58,875$$

$$A = P \cdot (A/P, 12\%, 10)$$

$$= 1,58,875 (0.1770)$$

$$A = ₹28,120/-$$

4(a) Financial Planning:-

Can be defined as preparation of plan for future cost taking into account.

• Profit planning:- Can be defined as detailed budget plan made for expenditure for half or entire year.

• Having a goal:- The Company must have a certain goal so as to plan towards it

- Laying out policy
- Assign duties
- Make a detailed procedure.

(b) Types of Budget:-

- ① Fixed budget
- ② Flexible budget
- ③ Master budget
- ④ functional budget
- ⑤ production budget
- ⑥ sales budget
- ⑦ wage budget.

Particulars	100% of 12,000 units		80% of 12,000 units		60% of 12,000 units		Total
	Approved	Total	Amt	Total	Amt	Total	
DMC	6,00,000		4,80,000		3,60,000		
DLC	5,40,000		4,32,000		3,24,000		
DE	1,44,000		1,15,200		86,400		
Total		12,84,000		10,27,200		7,70,400	
Voh	1,68,000		1,34,400		1,00,800		
Power (80%)	6,72,000		5,37,600		4,03,200		
Maintenance (60%)	5,40,000		4,32,000		3,24,000		
Total		1,38,00,000		11,04,000		8,28,000	
Power (20% fixed)	1,68,000		1,68,000		1,68,000		
Maint (40%)	3,60,000		3,60,000		3,60,000		
Admin	50,000		50,000		50,000		
Insurance	20,000		20,000		20,000		
Salary	75,000		75,000		75,000		
Total		6,73,000		6,73,000		6,73,000	
		33,37,000		28,04,200		22,71,400	
		278.08/unit		242.10/unit		315/unit	