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SEMESTER-V

B.Tech

END TERM EXAMINATION *Nov/Dec-2024*

HU-301 Engineering Economics

Time: 03:00 Hours *Max. Marks: 50*

Note : Attempt any five questions.
All questions carry equal marks.
Assume suitable missing data, if any.

1 a Define Sustainable Development. What is the role of an Engineer in promoting Sustainable Development? Discuss. [2+3=5] [CO# 1+3]

1 b Mr. A furnishes the following data relating to the manufacturing of a Standard product during the month of January 2024. [2+3=5] [CO# 4]

You are required to prepare

1) Cost Sheet

2) A Statement showing Profit for the Period.

Particular	Price/ Cost /Time
Raw material purchased	₹ 15000
Opening Stock of Raw Materials	₹ 4000
Closing Stock of Raw Materials	₹ 5000
Direct Labour Cost	₹ 9000
Machine Hours Worked	900 Hrs
Machine Hours Rate	₹ 5/ Hour
Carriage Inwards	₹ 1000
Administrative Overheads	20% Of Work Cost
Selling Overheads	₹0.50 Per Unit Sold
Units produced	17100 Units
Opening stock of finished goods	2000 Units @ ₹ 4.50 Per Unit
Units Sold	16000 Units
Selling Price per Unit	₹ 14

2 a Differentiate between Microeconomics and Macroeconomics with suitable examples [5][CO# 2]

2 b Summit has ₹90 with him. He intends to purchase goods X and Y with his money. The market price of X and Y per unit is ₹10. The marginal utility schedule of goods X and Y is given below. Find out how many units of X and Y should summit purchase so that he gets maximum satisfaction. [5] [CO# 2]

Units of Commodity	1	2	3	4	5	6	7	8	9	10
MUx	80	72	64	56	48	40	32	24	16	8
MUy	40	32	24	20	16	12	8	4	0	0

3 a What do you mean by Monopolistic Competition? How it is different from Perfect Competition? Discuss with suitable examples. [2+3=5] [CO# 1&3]

b A firm is borrowing 100 lakhs/ year for three years for technological upgradation. The loan will be repaid two years later@ 15%/ year. Calculate how much will be repaid. [5][CO# 2]

4 a What do you mean by an Opportunity Cost? How is it different from the Actual cost? Discuss with suitable examples . [2+3=5] [CO# 1&3]

b Calculate Total Fixed Cost (TFC), Total Variable Cost (TVC), Average Total Cost (ATC), Average Fixed Cost (AFC) and Marginal Cost (MC) from the following: 5 [CO# 2]

Output (in units)	0	1	2	3	4	5	6
TC (₹)	40	100	120	130	150	190	240

5 a What do you mean by Monetary Policy? How monetary policy may be used for controlling Inflation? Discuss [2+3=5] [CO# 1&3]

b A man owns a corner plot. He must decide which of the two alternatives to select in trying to obtain a desirable return on his investment. After much study and calculation, he decides that there are two best alternatives. Bank interest rate is 12% compounded annually. Details are given below: [5][CO# 2]

	Build Gas station	Build Ice-cream stand
Initial Investment (in ₹)	20,00,000	36,00,000
Annual Property Tax (in ₹)	80,000	1,50,000
Annual Income (in ₹)	8,00,000	9,80,000
Life of Building (in Years)	20	20
Salvage Value (value which owner may receive after completing life) (in ₹)	0	0

Evaluate the alternative based on the future worth method.

6 a What do you mean by Fiscal Policy? Suggest a fiscal policy to control air pollution in Delhi. [2+3=5] [CO# 1&3]

b A company invests in one of the two mutually exclusive alternatives. The life of both alternatives is estimated to be 5years with the following initial investments, annual return and salvage value (money received after selling the machine at the end of its operational life) [5][CO# 2]

	Alternative A	Alternative B
Initial Investment (in ₹)	1,50,000	1,75,000
Annual Equal Return (in ₹)	60,000	70,000
Salvage value (in ₹)	15000	35000

Determine the best alternative based on the annual equivalent method when rate of interest is 25%.

7 a You are CEO of an electronic company. Now, you want to expand your business in a foreign country. What are the factors you will consider while deciding foreign location for your company? [5][CO# 4]

7 b. A contract has been awarded the contract to construct a 6-mile long tunnel in the mountain. During the five years construction period, the contractor will need water from a nearby stream. He will construct a pipeline to carry the water to the main construction yard. An analysis of costs for various pipe sizes is as follows: [5][CO# 4]

	Pipe size (cm)			
	6	8	10	15
Installed cost of pipeline and pump(in ₹)	22,000	23,000	25,000	30,000
Cost/hour for pumping (in ₹)	1.20	0.65	0.50	0.40

At the end of 5 years, the pipe and pump will have a salvage value equal to the cost of removing them. The pump will operate 2000 hours per year. The lowest interest rate at which the contractor is willing to invest money is 7%. (The minimum required interest rate for invested money is called the minimum attractive rate of return(MARR)). Select the alternative with the least present worth of cost