

AUTUMN MID SEMETER EXAMINATION-2022
Subject: Engineering Economics
Code: HS 2002

B.Tech
 3rd Semester (Regul)
 SOH 2022



Full Marks: 20

Time: 1.5 Hrs

Answer any **FOUR** QUESTIONS including question No. 1 which is compulsory. The figures in the margin indicate full marks.
 Candidates are required to give their answers in their own words as far as practicable and all parts of a question should be answered at one place only

1. Answer the following questions

[5×1=5]

- (a) As a result of a 10% fall in the price of a good, its demand rises from 200 to 240 units. Find out the price elasticity of demand.
- (b) If the demand and supply curve for computers is: $D = 100 - 6P$, $S = 28 - 3P$. Where P is the price of computers, what is the quantity of computers bought and sold at equilibrium?
- (c) Define income effect and graphically represent Income consumption curve (ICC) for X as the luxury and Y is the necessary product.
- (d) What would be an effect on supply curve of the following: (Explain with diagram)
 - (a) Decrease in tax on product.
 - (b) Rise in own price of a piece of goods
- (e) Find MRS_{XY} .

X	4	6	8	10	12
Y	25	20	16	13	11

2. (i) The demand function for a product is $Q_d = 8000 - 1000P + 50I + 500R$, where Q_d is quantity demand, P is price, I is the average annual income of a consumer, and R is the price of the related goods. Assume that $I = ₹40$, $R = ₹4$, and the price of the product is ₹8. Find cross elasticity of demand, Price elasticity and Income elasticity.

ii) A person's budget line in relation to good A and good B has intercept of 80 units of good A and 30 units of good B. If price of good A is 15. Find out the income of that person, price of good B and slope of the budget line.

[2.5 + 2.5]

3. (i) A person X deposits an uniform amount of ₹80000 at the end of each year for 25 years. The rate of interest is 9% compounding annually. Find the compound amount that he will receive at the end of his deposit period. One of his friend Y wants the same compound amount at the end of 15 years for his daughter's higher education. He will get the same rate of interest as that person (X). Decide the annual equivalent amount that should deposit at the end of every year.

(ii) A loan of ₹200000 taken by a person for 5 years. The loan is to be repaid in 5 equal installments at 18% interest rate, compounded annually. Find the equal installment amount that should be paid for the next 5 years.

[2.5 + 2.5]

4. (i) A consumer consumes only two goods x and y . Her utility function is $U(x, y) = x^2 y^3$, her income is ₹105, and the prices of x and y are ₹1 and ₹3, respectively. How many x and y will she consume?

Q	1	2	3	4	5	6	7	8	9
MR	10	6	5	2	2	0	-1	-3	-6

5. (i) Forecast the sale for the current year based on the following historical data:

Year	Sales
7 years back	125
6 years back	128
5 years back	133
4 years back	135
3 years back	140
2 years back	141
1 year back	143

[2.5 + 2.5]

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