

MID SEMETER EXAMINATION-2023
Subject: Engineering Economics
Code: HS2002
Semester-5, B. Tech. (Electrical)

Full Marks: 40

Time: 1.5 Hrs

(Question number 1 is compulsory and answer any three from the rest)

Q1. Answer all the questions.

[2*5 = 10 Marks]

- a) Distinguish between change in quantity demanded and change in demand.
- b) Consider the market for laptops in 2015. Between 2015 and 2016, the equilibrium price of laptops remained constant, but the equilibrium quantity of laptops increased. From this, what can you conclude regarding changes in market forces between 2015 and 2016?
- c) You invest \$800 in an account that pays 6% interest, compounded annually. How much money do you have after five years?
- d) What does a horizontal and a vertical Income Consumption Curve (ICC) indicate?
- e) A consumer purchases 25 units of a commodity when her income is ₹ 45,000 per month. Find out income elasticity of demand for the commodity if its quantity demand decrease to 10 units when consumers income increases to ₹ 50,000 per month. Mention the commodity is what type of commodity with proper explanation.

Q2.

[10

marks]

- a) Explain Diagrammatically how the burden of a commodity tax is borne i) entirely by the Seller, ii) entirely by the Buyer, iii) equally by the buyer and seller, iv) more by the buyer less by the seller and v) more by the seller less by the buyer.

- b) The demand and supply for commodity X are given by $Q = 19 - P$ and $Q = 2.5P$, respectively.

Solve for the equilibrium price and quantity.

Suppose now the government imposes a per-unit tax of Rs. 4/- on the sellers, solve for the new quantity, net price sellers received, and price consumers paid.

Calculate the government revenue from the taxation.

Q3.

[10

marks]

- A) Below are given three alternative bundles of two goods-x and good-y:

Combination	Bundle1		Bundle2		Bundle3	
	Good-X	Good-Y	Good-X	Good-Y	Good-X	Good-Y
A	1	6	1	6	1	6
B	2	4	2	3	2	5
C	3	2	3	1	3	2

Which of these bundles can form a convex indifference curve? Explain your answer with diagram. Find the MRS for each bundle.

B) Utility Function is given as $U = xy$

Subject to Budget Constraint: $3x + 4y = 120$

Find the Utility maximizing combination of commodity x and y.

Q4.

[10

marks]

A) i) A person is planning for his retired life. He has 12 more years of service. He would like to deposit 30% of his salary, which is Rs. 8000/-, at the end of first year, and thereafter he wishes to deposit the amount with an annual increase of Rs. 700/- for the next 11 years with an interest rate of 7%. Find the total amount at the end of the 12th year of the above series.

ii) A person who is now 40 years old is planning for his retired life. He plans to invest an equal sum of Rs. 15,000/- at the end of every year for the next 20 years starting from the end of the next year. The bank gives 6% interest rate, compounded quarterly. Find the maturity value of his account when he is 60 years old.

B) Define Price, Income and Cross Elasticity of Demand with suitable examples.

Q5.

[10

marks]

a) Demand schedule for a commodity is given below. Forecast the demand for price = 20.

Price	Demand
10	75
15	68
17	62
21	54
23	48

b) By using the data in Q5. a), find the price elasticity of demand and mention the pricing strategy appropriate for the said product with justification.