KALINGA INSTITUTE OF INDUSTRIAL TECHNOLOGY
DEEMED TO BE UNIVERSITY, BHUBANESWAR – 24
(Decld. U/S 3 of UGC Act, 1956)
OFFICE OF THE CONTROLLER OF EXAMINATIONS

AUTUMN MID SEMETER EXAMINATION-2022
Subject: ENGINEERING ECONOMICS
Code: HS-2002

Full Marks: 20 **Time: 1.5 Hrs**

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Question number 1 is compulsory and answer any 3 from the rest

Question No	Question	CO Mapping	Marks
Q1.			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. Ans: **Epd= 2 (Elastic)**	CO3	1
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? **P= 8, Q= 52**	CO2	1
c	Define income effect and graphically represent Income consumption curve (ICC) for X as the luxury and Y is the necessary product. Student will explain income effect and represent ICC with diagram.	CO5	1
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 Ans: a) Supply will increase (Increase in supply) b) Supply will increase(Extension in Supply) Student will explain with diagram.	CO1	1
e	Find MRS_{XY}. X 4 6 8 10 12 Y 25 20 16 13 11 X 4 6 8 10 12 Y 25 20 16 13 11 **MRS_{XY}** - **2.5** **2** **1.5** **1**	CO4	1
Q2.	i) The demand function for a product is Qd = 8000 - 1000P + 50I + 500R, where Qd is quantity demand, P is price, I is the average annual income of a consumer , and R	CO2	5

	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. Ans:Price Elasticity(Epd)= **2 >1**, Income Elasticity(Eyd)=**0.5 >0**, Cross ElasticityEcd)=**0.5 >0** 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. Ans: Income(I)= $A*P_A$= 80*15= **900** B= I/P_B = 900/30 = **30** Slope of the budget line= P_A / P_B = **1/2 or 0.5**		
Q3	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. Ans: A= 80000, n= 25, i= 9% F= A(F/A,i, 25)= 6776071.698136 **F**=7664888.89, n=15, i= 9% A= F(A/ F,i ,15)= **189391.61** ii) A loan of ₹200000 taken by a person for 5years. 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. Ans: p= 200000, n=5, i= 18% A= P(A/P,i, n) = **63955**	CO4	5
Q.4	i) A consumer consumes only two goods x and y. Her utility function is $U(x,y)=x^2y^8$, her income is₹105, and the prices of x and y are ₹1 and ₹3, respectively. How many x and y will she consume? Ans: The consumer's budget constraint is: I= 3X+Y **X=21, Y=28** ii) From the schedule provided below calculate the total revenue, average revenue and the price elasticity of demand: Q 1 2 3 4 5 6 7 8 9 MR 10 6 5 2 2 0 -1 -3 -6 Q 1 2 3 4 5 6 7 8 9 MR 10 6 5 2 2 0 -1 -3 -6 **TR 10 16 21 23 25 25 24 21 15** **AR 10 8 7 5.7 5 4.16 3.4 2.6 1.6**	CO5	5

	Epd	**-**	**4>1**	**3.5>1**	**1.54>1**	**1.6>1**	**1**	**0.77<1**	**0.46<1**	**0.21<1**		
Q.5	i) Forecast 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 Ans: a= 135, b=3.1071 Y= 135+ 3.1071X **Y= 147.43** ii) Person X wants to purchase a home worth ₹7500000. He will pay emi for the next 20 years towards his loan repayment. The rate of interest charge by the bank 15% compounded annually. Find the amount of emi he will pay every year. Ans: p= 7500000, n=20, i= 15% A= P(A/P,i, n) = **1,198,213.65**										CO3	5

Signature of the course coordinator/coordinator