Kalinga Institute of Industrial Technology, Deemed to be University

Mid-Semester Examination - 2018

SUB: Engineering Economics: HS2002 5TH SEM B.TECH

Branches: Mech, Elec, CSCE,ETC & CSc,E & I

ANSWER ANY FOUR QUESTIONS INCLUDING QUESTION No. 1 WHICH IS COMPULSORY

[F.M. - 20] **Time - 1:30 hour**

1. (a) Define 'Demand' and write two major determinants of 'Demand'? **[1x5]**

(b) Prove that the slope of the budget line is equal to the ratio of prices of two commodities.

(c) Suppose the cross elasticity of demand between two varieties of apples is 0.6, between apple and apple juice is 0.7, between printer and ink is -0.9.What can you say about the relationship between each set of commodities?

(d) Distinguish between GDP and GNP.

(e) Find out how much money a consumer has to deposit now to get Rs. 10,00,000 after 5 years if the compounding is done half-yearly at an interest rate of 10%.

2. (a) The following table shows a consumer's utility from consuming two different goods -X and Y. The price of good X is Rs. 5 per unit and the price of good Y is Rs. 4 per unit.

(i) Fill up the cells of the given table and answer the following questions . **[3+2]**

Quantity (Units)	Good X			Good Y		
	Total Utility	Marginal Utility	MUx/Px	Total Utility	Marginal Utility	MUy/Py
1			25			30
2			20			20
3			19			16
4			16			15
5			15			14
6			13			11

(ii) How many units of each good X and Y should the consumer purchase at a budget of Rs. 32 and Rs. 41?

(b)From the following table forecast sales for the year 2015 and 2016.

Year	2009	2010	2011	2012	2013	2014
Sales(in $ 000)	10	12	22	35	40	42

3. (a) From the following demand function find out cross elasticity of demand between tea and coffee if price of tea is Rs. 300 per 500 gram pack.
[3+2]

$Q_C = 900 + 11P_t$ (Where Q_C is the quantity demand for coffee and P_t is the price of tea)

(b) From the given table, find out the followings:

Units of output(Q)	Total Revenue(TR)
20	200
21	210

(i) Find out Average Revenue (AR) and Marginal Revenue (MR) from the above table.

(ii) Find out MR for 21st units of output when price elasticity is 4.

4. (a) What is the marginal rate of substitution (MRS)? An indifference curve of Priya contains the following market baskets of good X and good Y. Each of these baskets gives her equal satisfaction. **[3+2]**

Market basket	Good X	Good Y
A	2	11
B	3	7
C	4	4
D	5	2
E	6	1

Find out the MRS of Priya? How does the MRS vary as she consumes more of good X and less of good Y? Give reasons.

(b) Following is given the demand(D) and supply(S) functions of a commodity. Answer the following questions. D=60 - 10P and S= 20 + 10P

(i) Find the equilibrium price and quantity.

(ii) Find the equilibrium price and quantity after a indirect tax of Rs. 1 per unit is imposed on the commodity.

5. (a) If $100 is invested at the end of each year for the next 10 years in a savings account that pays 5% interest, how much will be in the account immediately after the tenth payment?
[3+2]

(b) Assume that you plan to have US$ 200,000 after 20 years, and you are offered an investment (imaginary saving account) that gives you 6% per year compound interest rate. How much money do you need to save each year to generate the above fund?

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25/8/18