

**BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI**  
**FIRST SEMESTER 2016-2017**  
**Midsemester Test (Closed Book)**

Course No. : **ECON F211**

Course Title : **Principles of Economics**

Date : **03/10/2016**

Max. Marks : **30.00**

Duration : **90 mints**

Weightage : **30%**

**Q1.** Consider  $Q$  is quantity demanded, and assume that  $P = \text{Rs}100$ ,  $I = 120$ ,  $C = 32$  and  $E = 20$  and product is a normal good. Based on the given information, answer the questions that follow the table.

Intercept	Coefficient of Price (P)	Income coefficient (I)	Input price (C)	Coefficient of expected future income (E)
80	4	3	4	14

a) Calculate quantity demanded.

b) Calculate the price elasticity for demand. Identify the type of elasticity

c) Calculate the income elasticity of demand.

**[3.00]**

**Q2.** Due to increase in the production costs, the ceramic cup (which is normal good) manufacturer decides to increase the price of its product that is currently selling at Rs 10 per unit. The manager knows that the price elasticity of demand for ceramic cups is 0.75, and the demand for ceramic cups at Rs 10 per unit is 300 units. The price change results in a 30% change in quantity demanded. **NOTE:** Use mid-point approach to answer the following questions (**round up the final answer in each part to the nearest whole number**).

a) What will be the new quantity demanded?

b) Calculate the new price.

c) Calculate the change in total revenue.

**[4.00]**

**Q3.** Assume Gauri has a utility function  $U = XY$ , and money income of \$10,000, facing an initial price of X of \$20 and price of Y of \$10. If the price of X increased by 50% of its initial price, while other things being held constant, then answer the following questions:

a) What was the initial utility maximizing quantity of X and Y? What is the total utility that Gauri derives?

b) What is the new utility maximizing quantity of X and Y following the change in the price of X? What is the new utility that Gauri derives?

c) Draw the demand curve from the above situation.

**[5.00]**

**Q4.** Aditi Manufacturing Company Limited produces a popular brand of pipes whose production function is given as  $Q = 10LK$ , where  $Q$  = number of pipes produced,  $K$  = units of capital, and  $L$  = units of labor. The total cost with which all the combinations of  $K$  and  $L$  can be purchased is Rs 2000. If the entire Rs 2000 were spent on capital, the company could purchase 20 units of capital, and if the entire Rs 2000 were spent on labor, the company could purchase 200 units of labor. Given this information, answer the following questions:

a) The firm is currently employing 15 units of capital and 50 units of labor, is this firm operating under the cost-minimizing equilibrium condition? Why or why not? Substantiate your answer. (Note: Mention the course of action to be under taken by the firm)

b) If no, what is the optimal combination of inputs?

**[4.00]**

**P.T.O.**

**Q5.** Graphically derive the long run industry supply curve of a perfectly competitive market. **[3.00]**

**Q6.** Construct a short run supply function for an entrepreneur whose total cost function is  $TC = 0.04Q^3 - 0.8Q^2 + 10Q + 5$ . If there are 50 identical firms, derive the industry supply function. Calculate the quantity supplied of the industry if the market price is Rs.50 and Rs.5 . **[4.00]**

**Q7.** Given the following information, draw a similar table in your answer sheet just as given below and complete the columns. **[6.00]**

Quantity of output	Short run Total Cost	Total Fixed Cost	Total Variable Cost	Short Run Average Total Cost	Average Fixed Cost	Average Variable Cost	Short Run Marginal Cost
0			0	----	---	----	--
5					840		68
10							40
15							48
20							76
25							120
30							180

\*\*\*\*\*END\*\*\*\*\*