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Semester V (B.Tech)

Er. No. 20 IB308

Academic Year: 2022-23

Jaypee University of Engineering & Technology, Guna

T-3 (Odd Semester 2022)

21B14HS547 – CONCEPT OF ECONOMICS

Maximum Duration: 2 hours

Maximum Marks: 35

Notes:

1. This question paper has 07 questions.
2. Write relevant answers only.
3. Do not write anything on question paper (Except your Er. No.).
4. Calculator is allowed.

			Marks	CO
Q1.	**(a)**	Amy wants you to determine the minimum units of goods that she needs to sell in order to reach break-even each month. The bakery only sells one item: cakes. The fixed costs of running the bakery are Rs 1,700 a month and the variable costs of producing a cake are Rs 5 in raw materials and Rs 20 of direct labor. Additionally, Amy sells the cakes at a sales price of Rs 30.	[2+3]	CO4
	(b)	Assume that there is fruit seller who has 20 kilograms of apples to be sold and he wants to fix a price so that all apples are sold. There are three customers in the market and their individual demand function are given below: D1 = 25 – 1.0P D2 = 20 – 0.5P D3 = 15- 0.5P Determine the price at which he can sell all the apples.		
Q2.		Using your knowledge of the relationships among the various cost functions, complete the following table. Q is output produced in units and TC, TFC, TVC, ATC, AVC, AFC and AVC have their usual meanings.	[5]	CO4

Q	TC	TFC	TVC	ATC	AFC	AVC
0	1250					
10						50
20				105		
30			1100			
40	2550					
50						30
60					~~21~~	21
70				50		
80			2950			

Q3 The production function of a firm is estimated to be $Q = L^{1/2}K^{1/2}$. The cost of inputs Labor (L) and Capital (K) are Rs.2 and Rs.4 per unit respectively. If the firm producing Q has a budget constraint of Rs. 80. Calculate the optimal input combination and the level of output at the given cost. [5] CO5

Q4. A bicycle manufacturer sells bicycles in a perfectly competitive market. The cost function is $TC = 200 + 4Q + 0.02Q^2$. Calculate the price at which firm should shut down its operation and the long run break-even price. [5] CO4

Q5. Let the price of labor per unit be equal to Rs. 20 and price per unit of capital be Rs. 200. The firm has a production function $Q = 20LK$. What factor combination is optimally used for isoquants of 2000, 4000 and 6000? Also calculate the minimum cost in each case. [5] CO5

Q6. Suppose that a typical monopolistically-competitive firm faces the following demand and total cost equations for its product:

$$Q = 20 - \frac{5}{3}P$$

$$TC = 216 - 20Q + Q^2$$

Where P is price of the product and Q is the number of units produced. Determine the firm's profit-maximizing price and output level? [5] CO5

Q7. The demand function for price increases and for price decreases for an oligopolist are:

$$Q1 = 210 - 30P$$
$$Q2 = 90 - 10P$$

The oligopolist's total cost function is: $TC = 3.5Q + \frac{Q^2}{60}$

Calculate the level of output (quantity produced) at the kink on the demand curve. Also determine the lower and upper limits of the marginal revenue gap and marginal cost for the calculated output. [5] CO5