

Q3. In an industry, there are only three consumers – A, B and C and only three firms – X, Y and Z. [05] CO4

The demand functions for the three consumers are:

$$Q_A = 130 - 0.2P$$

$$Q_B = 50 - 0.4P$$

$$Q_C = 70 - 0.4P - 0.05P^2$$

The supply functions for the three firms are:

$$Q_X = 100 + 0.5P$$

$$Q_Y = 50 + 0.5P$$

$$Q_Z = 50 + 1.5P + 0.1P^2$$

Calculate the equilibrium price of the product

Q4. After a careful statistical analysis Nazareth & Co., concludes that the demand function for its product is $Q = 500 - 3P + 2P_r + 0.1I$; where, Q is the quantity demanded of its product, P is the price of its product, P_r is the price of its rival's product and I is the per capita disposable income. At present $P = \text{Rs.}10$, $P_r = \text{Rs.}20$ and $I = \text{Rs.}6000$. [05] CO4

What is the cross elasticity of demand between the firm's product and the rival's product?

Q5. Let's say a financial analyst at XYZ Corporation wants to predict the revenue for XYZ's new product line, Alpha Electronics, for the upcoming year. She holds the belief that the data from the last 12 quarters of sales (as displayed in the following presentation) accurately reflects what can be expected for next year's sales. Calculate seasonal index. Formulate the regression equation using seasonal index and estimate the next year sales. [06] CO5

Quarterly Sales				
Year	Q1	Q2	Q3	Q4
1	46	51	90	70
2	48	53	95	67
3	50	55	97	73

Semester V B.Tech

Er. No. 211083
Academic Year: 2023-24**Jaypee University of Engineering & Technology, Guna****T-2 (Odd Semester 2023)****21B14HS547 – Concept of Economics**

Maximum Duration: 1 Hour 30 Minutes

Maximum Marks: 25

Notes:

1. This question paper has 05 questions.
2. Write relevant answers only.
3. Do not write anything on question paper (Except your Er. No.).
4. Calculator is allowed.

- | | | Marks | CO No. |
|------------|---|-------|--------|
| Q1. | Consider the demand equation $Q = 10P^{-2.5}$, where Q is quantity demanded and P is the selling price. Calculate the point-price elasticity of demand | [04] | CO3 |
| Q2. | Vinod has a monthly income of Rs 340. Being an addict to fruit juices, he spends all his income on Apple, Mango and Orange juices. The prevailing prices of Apple, Mango and Orange juices are Rs 20, Rs 40 and Rs 50 per bottle, respectively. The total utility schedule of Vinod is given below. Vinod spent Rs 340 to achieve the maximum utility. The total utility that Vinod got in Rs 340 is: | [05] | CO4 |

Bottles Consumed	Total Utility (Utils)		
	Apple Juice	Mango Juice	Orange Juice
1	140	170	320
2	260	330	580
3	340	420	820
4	410	500	1020
5	460	570	1180
6	500	630	1300
7	520	670	1360