JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2024

B.Tech- VI Semester (CSE/IT/ECE/CE/BT/BI)

COURSE CODE (CREDITS): 23B1WHS631 (3) MAX. MARKS: 35

COURSE NAME: ENGINEERING ECONOMICS

COURSE INSTRUCTORS: Bilal Khan MAX. TIME: 2 Hours

Note: ***(a)*** *All questions are compulsory.*

(b) Marks are indicated against each question in square brackets.

(c) The candidate is allowed to make suitable numeric assumptions wherever required for solving problems.

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1. The demand and supply functions for a commodity are as follows: (CO3) [7]

$$Q_d = 24000 - 2000P$$

$$Q_s = 500P - 1000$$

Calculate the equilibrium price and quantity. Suppose a price ceiling of \$6 is imposed on the commodity, what will be the consumer surplus (CS), producer surplus (PS) before and after imposition of price ceiling and dead-weight loss (DWL). Also show the differences in CS, PS and DWL with the help of diagram after price ceiling is imposed.

2. Suppose that there are two firms in a duopoly form of market. The demand and cost functions of these two duopolistic firms are as follows: (CO4) [7]

$$P = 200 - 0.5\,(Q_1 + Q_2)$$

$$C_1 = 6Q_1 \text{ and } C_2 = 0.6\,Q_2^2$$

Using the Cournot solution, find:

[Note: Do your calculations up to two decimal places only]

(a) The equilibrium quantities for both the firms and price level.

(b) The differences in profit levels for both the firms.

(c) Show that a rise of either duopolist's output level will cause a reduction in optimum output of the other duopolist.

3. Assume that the two duopolistic firms in the above question (2), now decide to form a cartel with the purpose of joint-profit maximization. Further, assuming that there is no change in the demand and cost functions for both the firms, (CO4) [7]

Find the following using the collusion solution:

(a) Compare the equilibrium quantities for both the firms and price level, with that of Cournot solution.

(b) Compare the profit differences for both the firms, with that of Cournot solution.

(c) Compare the changes in joint profit levels and changes in each duopolist profit levels, through both methods.

4. Explain and derive the following identity in the context of 'H' theory of money supply: (CO5) [7]

$$M=\frac{1+t}{c+r(1+t)}H$$

5. Discuss the **'one-good'** model without factor mobility. Assuming that there happens to be international factor mobility in the future, explain diagrammatically, what would be the consequential impact of this redistribution of world's labour force? (CO5) [7]

OR

6. Write short notes on:

(a) Fixed and Flexible exchange rates.

(b) Current and Capital account of Balance of Payments

(c) Spot and Futures Transactions