NATIONAL INSTITUTE OF TECHNOLOGY ROURKELA
MID SEMESTER EXAMINATION 2024
SESSION: 2023-24 (Spring)

Subject Code: HS-1349 **Dept. Code: HS**
Subject Name: Industry and Development **Full Marks: 30**
Total pages: 02 **Duration of Examination: 2 hours**

All parts of a question should be answered in one place

Q. N.	**Section A**	**Marks**
	Answer any <u>FOUR</u>	**4x4=16**

1. Distinguish between the law of variable proportions and returns to scale. Derive the long run average cost curve from short run average cost curves of firms and show the minimum efficient scale of production.
2. What is price elasticity? What are the major determinants of price elasticity of demand of a commodity? Differentiate between perfectly elastic and perfectly inelastic demand.
3. Distinguish between perfect and imperfect markets. With the help of diagrams, explain equilibrium, economic profit, economic loss and breakeven under monopoly.
4. What are the necessary conditions for price discrimination? Explain with examples the three types of price discrimination practiced in imperfect markets.
5. Define entry barriers with suitable examples. Discuss the conditions under which free entry and exit of firms happen in a market?

	Section B	**Marks**
	Answer any <u>TWO</u>	**2x7=14**

1. A firm faces a residual demand curve of $q = 100 - \frac{1}{2}p$ and has constant marginal costs of mc = 4 and no fixed costs. The firm is considering choosing a production level q = 20.
a) Is this the profit maximising quantity for the firm?
b) What is the profit-maximising quantity and price of the firm? What profits will it earn?
c) How do the profit-maximizing quantity, price, and profits of the firm compare to the competitive (aggregate) quantity, price, and (aggregate) profits?

2. Assume an imperfect market setting where the total demand is $P = 100 - 2X$ and the cost function cost function is $c = 50 + 40X$.
Assume further that the market is segregated and price discrimination is practiced by a monopolist. The demand functions of the segmented markets are:

$$p1 = 80 - 2 \cdot 5x_1$$
$$p2 = 180 - 10x_2$$

a) Find the profit maximising price, output and profits in each of the segregated markets of the discriminating monopolist.

b) Compare the result with the case of non-discriminating monopolist.

3. Consider a duopoly of firm 1 and 2 producing a homogenous product, the demand of which is described by the following demand function:

$$Q = \frac{1}{2}(100 - P)$$

where Q is total production of both firms (i.e., $Q = Q_1 + Q_2$).

Let the marginal cost of production faced by each firm be 40.

a) Calculate the reaction functions for both the firms.

b) Using their reaction functions, find the Cournot-Nash equilibrium quantity produced by each firm.

c) Compare this result with the monopoly outcome and interpret the finding using your own judgement.

------xxxx------