

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION SP/2025)**

CLASS: IMSc
BRANCH: CQEDS

SEMESTER : II
SESSION : SP/2025

SUBJECT: ED24115 INTRODUCTORY MICROECONOMICS

TIME: 03 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates

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| <p>Q.1 Think of a Sunday, draw the indifference curve for yourself deciding how to allocate time (total T) between work and leisure. The more you work the more you get to consume. Suppose the authorities say that they will provide a hike in wages for Sunday work. [6+4]</p> <p style="margin-left: 20px;">a. What will happen to your consumption in normal case? Differentiate between substitution and income effects to explain.</p> <p style="margin-left: 20px;">b. Is it possible that the person's consumption would fall? In what situation? Discuss.</p> | 1 | 2,3 |
| <p>Q.2 For each of the following production functions, [2+1+2]</p> <p style="margin-left: 20px;">a. calculate the marginal product for each input, and indicate whether each marginal product is diminishing, constant, or increasing.</p> <p style="margin-left: 20px;">b. Calculate the marginal rate of technical substitution for each function.</p> <p style="margin-left: 20px;">c. indicate whether the function exhibits constant, increasing, or diminishing returns to scale. [2+1+2]</p> <p style="margin-left: 20px;">(i) $F(L, K) = LK^3$</p> <p style="margin-left: 20px;">(ii) $F(L, K) = (\min\{L, K\})^{1/3}$</p> | 2 | 1,2 |
| <p>Q.3 a. If the firm's average cost curves are U-shaped, why does its average variable cost curve achieve its minimum at a lower level of output than the average total cost curve? [5]</p> <p style="margin-left: 20px;">b. Suppose Adrosonic produces Tech solutions using skilled workers like you all and software packages (assume some initial per unit input prices). Skilled workers are angry for mis management and go on dharna and leads to a wage hike. How will Adrosonic respond keeping output levels unaffected (use relevant diagram)? [5]</p> | 3 | 4,5 |
| <p>Q.4 The United States currently imports all of its coffee. The annual demand for coffee by U.S. consumers is given by, $Q = 250 - 10P$, where Q is quantity and P is the market price per pound of coffee. World producers can harvest and ship coffee to U.S. distributors at a constant marginal (average) cost of \$8 per pound. U.S. distributors can in turn distribute coffee for a constant \$2 per pound. The U.S. coffee market is competitive. [5.2=10]</p> <p>Now U.S. Govt is considering a tariff on coffee imports of \$2 per pound.</p> <p style="margin-left: 20px;">a. If there is no tariff, how much do consumers pay for a pound of coffee? What is the quantity demanded?</p> <p style="margin-left: 20px;">b. If the tariff is imposed, how much will consumers pay for a pound of coffee? What is the quantity demanded?</p> <p style="margin-left: 20px;">c. Calculate the lost consumer surplus.</p> <p style="margin-left: 20px;">d. Calculate the tax revenue collected by the government.</p> <p style="margin-left: 20px;">e. Does the tariff result in a net gain or a net loss to society as a whole?</p> | 4 | 2,3,4 |

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Q.5 A monopolist faces the demand curve $P = 11 - Q$, and has a constant average cost of \$6 per unit.

5 2,3,4,

a. Draw the average and marginal revenue curves and the average and marginal cost curves. What are the monopolist's profit-maximizing price and quantity? What is the resulting profit? Calculate the firm's degree of monopoly power using the Lerner index. [7+3]

b. A government regulatory agency sets a price ceiling of \$7 per unit. What quantity will be produced, and what will the firm's profit be? What happens to the degree of monopoly power?

b. Briefly discuss what happens in a two part tariff.

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