

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: IMSC
BRANCH: QE & DS

SEMESTER : II
SESSION : SP/22

SUBJECT: EC115 INTRODUCTORY MICROECONOMICS

TIME: 3 Hrs.

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 hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) What are the three axioms of consumer preference? Explain. [3]
- Q.1(b) A consumer has the utility function over goods x and y ,
 $u(x,y) = \sqrt{x} + \sqrt{y}$
Let the price of good x be given by p_x , let the price of good y be given by p_y , and let income be given by M .
- (i) Derive the consumer's generalized demand function for good y . [3]
 - (ii) Is good y normal or inferior? [2]
 - (iii) If we have $p_x=2$, $p_y=1$, and $M=12$, compute the utility maximizing consumption bundle of goods x and y . [2]
- Q.2(a) What is meant by returns to scale? Explain profit maximization with respect to different returns to scale. [4]
- Q.2(b) A firm operates with a production function:
 $Q=10L+2K$.
The price (in thousands) of labour (L) is Rs. 5 per unit and of capital is Rs. 2 per unit.
- (i) Find the marginal product of labour and capital. [1]
 - (ii) Find the optimal input combination that firm must use to produce 200 units of output, and the total cost. [5]
- Q.3(a) Explain short run and long run cost. [5]
- Q.3(b) The total cost of producing output q is [5]
 $TC(q) = 100 + q^2$.
Find the Average variable cost, Average total cost, and Marginal Cost. At what level of output is Average variable cost minimized?
- Q.4(a) Explain **by only graphs** (draw rough graphs, NO GRAPHS WILL BE PROVIDED) what happens to long run supply curve when tax is imposed. [5]
- Q.4(b) A firm's production function is $f(x_1, x_2) = (\max\{x_1, 3x_2\})^{1/2}$. If the price of factor 1 is $w_1 = \text{Rs. } 5$ and the price of factor 2 is $w_2 = \text{Rs. } 15$. What is the supply function? [5]
- Q.5(a) Why are monopolies inefficient? Explain with regards to total surplus. Use only graphs to explain. (Draw rough graphs, NO GRAPHS WILL BE PROVIDED). [5]
- Q.5(b) What are the three price discrimination strategies used by monopolies? [5]

::::::20/07/2022::::::