

BACHELOR OF ARTS EXAMINATION, 2019

(2nd Year, 3rd Semester)

ECONOMICS

INTERMEDIATE MICROECONOMICS I

Time : Two hours

Full Marks : 30

Answer **any five** questions taking **at least one from each group**

Only the first five answers will be awarded with marks

Group A

1. (i) State Slutsky equation.
(ii) Argue that a normal good can never be a Giffen good.
(iii) In 2002, Indians consumed 480 million bottles of soft drinks of various brands and they spent 2% of their annual income for this. The average retail price was Rs. 8 per bottle. Statistical studies have shown that the price elasticity of Marshallian demand is -0.4 and the income elasticity of demand is 1. The market supply curve is perfectly elastic.
- Calculate the Hicksian demand elasticity.
 - If the government imposes a tax of Rs. 1 per bottle of soft drink, calculate the welfare loss of the consumers.

$$1 + 1 + (2 + 2) = 6$$

2. Consider two individuals A and B with identical preference pattern over two commodities represented by $u(x_1, x_2) = x_1^{0.5}x_2^{0.5}$. Endowment bundles of the individuals are given as $w_A = (10, 20)$ and $w_B = (20, 10)$. The market price of the two commodities are $p_1 = 10$ and $p_2 = 5$ respectively.
- Identify the net seller and net buyer of the commodities at the market.
 - Now suppose the price of commodity 1 falls by 2 units. Find out if both the individuals gain in terms of utility. Explain your answer.

$$3 + 3 = 6$$

3. (i) State the basic assumptions of the Revealed Preference Theory.
(ii) Use the revealed preference argument to prove that the own price substitution effect of a commodity is always negative.

[Turn over

(iii) Here is a table that illustrates some observed prices and choices for three different goods at three different prices in three different situations.

Situation	p_1	p_2	p_3	x_1	x_2	x_3
A	1	2	8	2	1	3
B	4	1	8	3	4	2
C	3	1	2	2	6	2

Are the observations consistent with the Weak Axiom of Revealed Preference? $2 + 2 + 2 = 6$

Group B

4. (i) "A production method must be efficient to be a least-cost method of producing Q units of output, but an efficient method need not be a least-cost method." True or false? Why?
(ii) Suppose that XYZ Corporation's total wages are twice the company's total expenditure on capital. XYZ has a Cobb-Douglas production function that has constant returns to scale. What can you deduce about parameters α and β of this production function?
(iii) Write the interpretations of α and β .

$$2.5 + 2.5 + 1 = 6$$

5. A firm produces an output by using a technology which shows diminishing return to the variable factors employed in the production process. The firm is competitive both at the input markets and the output market. Consider the short run production decision of the firm, where only one variable factor is used.
- (i) Show that the last unit of variable input used in the production process is paid the entire value of its output. 1
- (ii) The profit function is convex in the price of the variable input. 2
- (iii) Look at the data of the firm for the following period when the output price remains fixed:

	Profit	Price of variable input
Day 1	10	5
Day 2	0	6
Day 3	30	4
Day 4	-5	7
Day 5	60	3
Day 6	-7	8
Day 7	-8	9

- a. Derive the input demand function of the firm. 1.5
- b. Suppose the fixed cost of operation is 9. Calculate the Producer's Surplus for Day 1 to Day 6 of the operation. 1.5
6. Pencils are produced in a perfectly competitive industry. The demand function for pencils is given by $D(p) = 100 - p$. Average cost of producing q units is given by $AC(q) = 4 + (2 - q)^2$.
- (i) Derive the shutdown point of each firm operating in this industry?
- (ii) In the long run how many firms would exist in this industry?
- (iii) If a Rs. 1 tax is imposed on per unit sale of pencils, would the price of pencils and the number of firms that still exist in the industry change? If it is, calculate the new price and number of firms in the industry. $2 + 2 + (1+1) = 6$
7. If all the firms possess Diminishing Return to Scale technology, show that the long run equilibrium does not exist in a competitive market with free entry and exit of firms. 6