

International Islamic University Chittagong (IIUC)

Department of Economics & Banking

Mid-term Examination: Autumn 2022

Program: B.S.S. (Honours)

Course Code: MATH - 1101

Course Title: Fundamentals of Mathematical Economics

Time: 1.5 Hours

Full Marks: 30

Answer any Three of the following questions. All parts of a question must be answered sequentially. Figures in the right margin indicate full marks.

1. (a) Write the correct answer of the following statements when it is wrong: 4
 - i) All constants are parameters, but all parameters are not constants.
 - ii) Irrational numbers are repeating and nonterminating decimal.
 - iii) $-\sqrt{2}$ is an imaginary number.
 - iv) 1,2,3..... are positive rational number.
 - v) $A \cap A = A \cup A$
 - vi) Slope of the function, $Y = 2 - 4x$ is 4
 - vii) Distance from Dhaka to Chittagong is a variable.
 - viii) For the function $y = x^2$, the range will be the set of all negative real numbers.
- (b) Find the power set of the set, $A = \{-2, 0, 3, 4\}$. Given the universal set $U = \{x | -3 < x \leq 4, x \text{ is integer}\}$, find the complement of A. 4+2
2. (a) Distinguish between real number and unreal number. 1
(b) Describe the composition of real number system. 5
(c) Write down the names of the categories in which the following numbers into: 4
 $\sqrt{3}, \sqrt{64}, 0, -7, \sqrt{-2}, 8, -\sqrt{4}, \frac{6}{9}$
3. (a) Differentiate the following pairs of concepts: 4
 - i) Finite set and Infinite set
 - ii) Exogenous variable and Endogenous variable
- (b) Examine the commutative, associative and distributive laws of set operation considering the following three sets: 6
$$A = \{x | 2 < x \leq 4, x \text{ is integer}\}$$
$$B = \{x | x \leq 8, x \text{ is even integer}\}$$
$$C = \{x | x \text{ is factors of } 8\}$$

4. (a) Find out coefficients, slopes and intercepts of the following functions: 6
- i) $Q_d = 2 - 3P$ ii) $y = 7x$
- iii) $y = 4 + 6x$ iv) $z = -4$
- (b) Find the domain & range of the demand function: $Q = 2 - 3P$ 2
- (c) Graph the function: $y = x^3$ 2