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Total No. of Pages : 02

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**B.Sc. Business Economics (BBE) (2015 to 2017) (Sem.-1)****QUANTITATIVE TECHNIQUES FOR ECONOMICS – I****Subject Code : BBE-103****M.Code : 72693****Time : 3 Hrs.****Max. Marks : 60****INSTRUCTIONS TO CANDIDATES :**

1. **SECTION-A is COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** consists of **FOUR** Sub-sections : Units-I, II, III & IV.
3. Each Sub-section contains **TWO** questions each, carrying **TEN** marks each.
4. Student has to attempt any **ONE** question from each Sub-section.

**SECTION-A****1. Write short notes on the followings :**

- (a) De Morgan's law
- (b) Difference of two sets
- (c) Adjoint of a matrix
- (d) Scalar matrix
- (e) Minor of an element
- (f) Cramer's rule
- (g) What is a geometric progression?
- (h) What is an arithmetic progression?
- (i) Khan borrows some money at the rate of 6% p.a. for the first two years. He borrows the money at the rate of 9% p.a. for the next three years, and at the rate of 14% per annum for the period beyond five years. If he pays a total interest of Rs. 11400 at the end of nine years, how much money did he borrow?
- (j) What was the principal amount borrowed by him? A man took a loan from a bank at the rate of 12 % p.a. simple interest. After three years he had to pay Rs. 5400 interest only for the period.

## SECTION B

### UNIT-I

- In a school. 28 students were singer, 35 were tabla player, 37 flute players. Out of this population of 1000 students, 15 could sing and play tabla, 20 tabla and flute, 15 singing and flute, and 5 could all of these three. Find out how many students were not playing all of three.
- What are the fundamental properties of Logarithms? Discuss with proof.

### UNIT-II

- The total sales of a firm selling products  $x$  and  $y$  are given by relationship  $V = 1+bx+cy$ . The data for the 3 months periods is given below :

Months	Volume of sales (V)	$x$	$y$
April	15000	3	4
May	18000	5	2
June	20000	6	3

Using determinant method, determine the sales in the next month when it sells 8 units of  $x$  and 5 units of  $y$ .

- Solve the following set of equations by using the matrix method :

$$\text{If } x + y - z = 1; 3x + y - 2z = 3; x - y - z = -1$$

### UNIT-III

- An Arithmetic Progression has 23 terms, the sum of the middle three terms of this arithmetic progression is 720, and the sum of the last three terms of this Arithmetic Progression is 1320. What is the 18<sup>th</sup> term of this Arithmetic Progression?
- The sum of an infinite G. P. with positive terms is 48 and sum of its first two terms is 36. Find the second term.

### UNIT-IV

- A cycle of Rs. 5000 is available in Rs. 1000 cash down payment and 9 equal monthly instalments of Rs. 500 each. Find the interest rate.
- A person deposits Rs. 25 lakh with a bank @6.8% per annum, compounded quarterly. What would be total sum and interest after two years?

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**