

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. The sum of three numbers in Arithmetic Progression is 24 and their Product is 440. Find the numbers.

17. Examine whether the following equations are consistent and if so, solve :

$$X_1 + 2X_2 + 3X_3 = 14,$$

$$3X_1 + X_2 - X_3 = 2,$$

$$8X_1 + 6X_2 + 4X_3 = 32.$$

18. Discuss the characteristics and limitations of statistics.

19. Find the mean, median and mode :

Interval: 20-30 30-40 40-50 50-60 60-70 70-80 80-90 90-100

Frequency: 4 14 20 51 32 17 6 4

20. Calculate Karl-Pearson's coefficient of skewness for the following data :

X: 12 15 20 25 30 40 50

F: 10 25 40 70 32 13 10

S.No. 1199

17USTA12

(For the candidates admitted from 2017–2018 onwards)

B.B.A. DEGREE EXAMINATION, APRIL/MAY 2018.

First Semester

BUSINESS MATHEMATICS AND STATISTICS – I

(Common for B.B.A (IB) and B.B.A. (RM))

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Find the indicated terms in each of the sequence whose n^{th} terms are given by $a_n(-1)^n 2^{n+3}(n+3)$; a_5, a_8 .
2. The first term of an A.P. is 6 and the common difference is 5. Find the A.P and its general term.
3. A matrix consists of 30 elements. What are the possible orders it can have?

4. If $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & -5 \\ 3 & -5 & 6 \end{bmatrix}$ then verify that $(A^T)^T = A$.

5. What are four main functions of statistics?
6. Define statistics as given by C.H. Meyers.
7. Calculate the arithmetic mean 93, 35, 75, 87, 90.
8. Define geometric mean.
9. Find the range 78, 35, 56, 72, 21, 85, 12, 19, 92, 20.
10. How can we know about skewness?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

All questions carry equal marks.

11. (a) The 10th and 18th terms of an A.P. are 41 and 73 respectively. Find the 27th terms.
Or
- (b) Find the sum of the first 75 positive integers.
12. (a) Find the values of x, y and z from the matrix equation

$$\begin{bmatrix} 5x+2 & y-4 \\ 0 & 4z+6 \end{bmatrix} = \begin{bmatrix} 12 & -8 \\ 0 & 2 \end{bmatrix}$$

Or

- (b) If $A = \begin{bmatrix} 1 & -1 \\ 2 & 3 \end{bmatrix}$ then show that $A^2 - 4A + 5I = 0$.

13. (a) What are the limitations of statistics?

Or

- (b) What are the advantages of diagrammatic representation of data?

14. (a) Find the arithmetic mean and mode.
C.I. 0-10 10-20 20-30 30-40 40-50
F: 14 24 38 20 4

Or

- (b) Calculate the A.M., G.M., and H.M. of the data :

19, 23, 24, 27, 32, 33, 41, 0.

15. (a) Calculate the mean deviation from the median :

C.I. : 16-20 21-25 26-30 31-35 36-40 41-45

F: 8 15 13 20 11 7

C.I. : 46-50 51-55 56-60

F: 3 2 1

Or

- (b) Calculate the standard deviation :

Marks : 30 50 70 90 110 130 150

No. of students : 5 7 22 60 85 32 8