

Name

Roll No.

TU/MATH

P

TEZPUR UNIVERSITY
Class Test A-I, Autumn Semester, 2018
MS-201: MATHEMATICS-III

Full Marks-25

Time- 45 mins

(In question nos. 1-10, choose the appropriate answer from the given options and write them in the adjoining boxes. 2.5 marks will be given for each correct answer and **1.0 mark** will be deducted for each **wrong answer**)

1. Suppose \bar{x} denotes the arithmetic mean of n positive values x_1, x_2, \dots, x_n . Also suppose $y_i = x_i - \bar{x}$. Then,
 (a) $y_i^2 > 0$ for all $i = 1, \dots, n$ (b) $y_i = 0$ for all $i = 1, \dots, n$ (c) $y_i = \bar{x}$ for all i (d) None of the above.

ANS (d) None of the above.

2. Mean deviation of n positive values x_1, x_2, \dots, x_n is least while calculated around
 (a) Arithmetic Mean (b) Median (c) Mode (d) None of the above.

ANS (b) Median

3. For n positive values x_1, x_2, \dots, x_n ,
 (a) Harmonic Mean is always unique (b) Harmonic Mean will never be unique (c) Harmonic Mean will always be greater than Arithmetic Mean (d) None of the above.

ANS (a) Harmonic Mean is always unique

4. The mode score of the students of a class is 94. Which of these interpretations must be correct?
 (a) 99 is the highest score (b) More students received a 94 than any other score
 (c) A score of 91 is slightly below average (d) Both (b) and (c).

ANS (b) More students received a 94 than any other score

5. The marks obtained by the students in a class are given below. Find the mean and standard deviation.
 29, 26, 13, 23, 23, 25, 17, 22, 17, 19

(a) 21.4, 4.61 (b) 21.4, 4.85 (c) 20.3, 7.09 (d) 20.3, 6.72.

ANS (b) 21.4, 4.85

6. If the variance of two sets of values x_1, x_2, \dots, x_m and y_1, y_2, \dots, y_n are same, then
 (a) $m = n$ always (b) $m < n$ always (c) $x_i = y_i$ for all i (d) None of the above.

ANS (d) None of the above.

7. If the third moment about mean is zero, then the distribution is
 (a) Mesokurtic (b) Positively skewed (c) Symmetrical (d) Negatively skewed.

ANS (c) Symmetrical

8. For which of the following values of the coefficient of kurtosis can a given distribution be platykurtic?

- (a) 2.265 (b) 3.135 (c) 0.135 (d) 0.265.

ANS (c) 0.135

9. Suppose r denotes the product moment correlation coefficient for a set of sample values. Then

- (a) $r^2 > 1$ (b) r always exist (c) Both (a) and (b) (d) None of the above.

ANS (d) None of the above

10. A correlation of -0.5 would indicate a scatter diagram in which the slope is

- (a) Curvilinear (b) Downwards (c) Upwards (d) None of the above.

ANS (b) Downwards

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(In question nos. 1-10, choose the appropriate answer from the given options and write them in the adjoining boxes. 2.5 marks will be given for each correct answer and **1.0 mark** will be deducted for each **wrong answer**)

1. Suppose \bar{x} denotes the arithmetic mean of n positive values x_1, x_2, \dots, x_n . Also suppose $y_i = x_i - \bar{x}$. Then,
 (a) $y_i^2 - \bar{x}^2 < 0$ for all $i = 1, \dots, n$ (b) $y_i = 0$ for all $i = 1, \dots, n$ (c) both (a) and (b) (d) None

of the above.

ANS (d) None of the above.

2. Which of the following is correct?
 (a) Mode is always larger than the mean
 (b) Mode is always larger than the median
 (c) Mode is always smaller than the mean
 (d) Mode always assumes one of the two values

(e) None of these.

ANS (e) None of these.

3. The least value of the variance of a set of sample values $\{x_1, x_2, \dots, x_n\}$ is

(a) 0 (b) \bar{x} (c) Both (a) and (b) (d) None of the above.

ANS (a) 0

4. For n values x_1, x_2, \dots, x_n ,

(a) Variance is always unique (b) Variance will never be unique (c) Variance is always greater

than Mode (d) None of the above.

ANS (a) Variance is always unique

5. The marks obtained by the students in a class are given below. Find the mean and standard deviation.
 12, 26, 30, 30, 18, 14, 12, 26, 17, 18

(a) 21.4, 4.61 (b) 21.4, 4.85 (c) 20.3, 7.09 (d) 20.3, 6.72.

ANS (c) 20.3, 7.09

6. If the Standard Deviation of two sets of values x_1, x_2, \dots, x_m and y_1, y_2, \dots, y_n are same, then

(a) $m = n$ always (b) $m > n$ always (c) $x_i = y_i$ for all i (d) None of the above.

ANS (d) None of the above

7. The first moment about mean is always

(a) Zero (b) One (c) Negative (d) None of the above.

ANS (a) Zero

8. For which of the following values of the moment coefficient of kurtosis can a given distribution be leptokurtic?

- (a) -3.265 (b) 3.135 (c) 0.135 (d) 0.265.

ANS (b) 3.135

9. Suppose r denotes the product moment correlation coefficient for a set of sample values. Then

- (a) $r^2 < 1$ (b) r sometimes can be undefined (c) r always exists (d) None of the above.

ANS (b) r sometimes can be undefined

10. A correlation of 0.5 would indicate a scatter diagram in which the slope is

- (a) Curvilinear (b) Downwards (c) Upwards (d) None of the above.

ANS (c) Upwards