Roll No. _____

SIS 070 B-15

B.Sc. Ist Semester Degree Examination

Mathematical Statistics

(Descriptive Statistics and Mathematics)

Paper - I

Time : 3 Hours

Maximum Marks : 80

Note : Graph sheets, mathematical and Statistical tables will be supplied on request.

Section - A

1. Answer the following.   (15×1=15)

   1) One of the sources of secondary data is

      a) Direct personal interview   b) Questionnaire method

      c) News paper   d) Correspondence method.

   2) Chronological classification is according to

      a) time   b) Location   c) Attributes   d) Variables

   3) The positive difference between two extreme observations of the data is called

      a) Width   b) Range   c) Mid value   d) Frequency

   4) If $\bar{x} = 25, \sum xi = 2500$, then the number of observations is

      a) 50   b) 75   c) 100   d) 125

   5) Mode is obtained graphically using

      a) Ogives   b) histogram

      c) frequency curve   d) frequency polygon

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6) Standerd deviation is independent of change of origin but not of

   a) Range b) Width of the classes c) Scale d) Frequency

7) Skewness means

   a) Clusturing b) Scatteredness c) Peakedness d) Lack of symmetry.

8) If C.V = 10 and $\bar{x} = 40$, then s.d. is

   a) 4 b) 50 c) 400 d) 5

9) If $\beta_2 = 3$, then the distribution is called

   a) Normal b) Platikurtic c) Leptokurtic d) None

10) The value of median is same as

   a) Q_1 b) D_2 c) Q_3 d) D_5

11) Statistical table is a systematic arrangement of data in _____ and _____ of a table.

12) Bar diagrams are _____ dimensional diagrams.

13) If $\beta_1 < 0$, then the distribution is said to be _____.

14) The algebraic sum of deviations of all the values from their mean is equal to _____.

15) Standerd deviation is always _____.

Section - B

II Answer any **Five** of the following. (5×5=25)

16) Define statistics state its functions.

17) Define primary and secondary data compare them.

18) Explain the construction of component bar diagram and simple pie diagram.

19) What are the main steps in tabulation of data?

20) What is meant by central tendency and measure of central tendency ? Describe any two measures of central tendency.

21) Explain Kurtosis and its types.

22) a) If $y = \dfrac{2x^2 - 3}{x^2 + 4}$, find $\dfrac{dy}{dx}$.

b) Evaluate $\displaystyle\int \left(\dfrac{x^4 + 1}{x^2 + 2} \right) dx$.

Section - C

III. Answer any **Four** of the following. (4×10=40)

23) Explain classification and tabulation along with different parts of a table.

24) Describe any two methods of collection of primary data.

25) What is a frequency distribution? State the essential points to be considered while constructing a frequency distribution.

26) Define standerd deviation. State and prove its properties.

27) Find the standerd deviation of first n natural numbers.

28) Derive the formula for mode of grouped data.