Bachelor level/ B. Sc. / 1ˢᵗ Semester	Full Marks: 60
Time: 3 hours	Pass Marks: 30

Subject: Descriptive statistics/ Fundamental of statistics (STA415/315)

Candidates are required to give their answer in their own words as far as practicable. The figures in the margin indicate full marks.

Group A

Long answer questions. [4x6 = 24]

1. Discuss partition values. Derive median formula for continuous series. [2+4]
2. Explain Ginni's coefficient of mean difference. Prove that in discrete series standard deviation is not less than the mean deviation about mean. [3+3]
3. Calculate percentile coefficient of kurtosis from the data given below and interpret the result.

Class interval	frequency
50-60	10
60-70	14
70-80	18
80-90	24
90-100	16
100-110	12
110 and above	6

4. What do you mean by correlation? Prove that spearman's rank correlation coefficient is given by, $p = 1 - \frac{6 \sum d^2}{n(n^2-1)}$

OR

Define moments. prove that $\mu_r = \sum c(r,i)\mu_{r-1}'(-\mu_1')^i$

Group-B

Short answer questions. [6x4=24]

5. Explain the meaning of statistics. What are the limitations of statistics?

OR

Differentiate between primary and secondary data. Describe different methods of collecting primary data.

6. What is five number summary? using box and whisker plot test the nature of the following distribution.   X: 40, 60, 90, 45, 95, 32, 74, 51, 87, 100, 120, 130.

7. If mean and standard deviation of 100 observations were found to be 20 and 3 respectively. After the calculation it was found that three of the observations were incorrect which were recorded as 20 ,25 and 18. Find the mean and standard deviation if incorrect observations are omitted.

8. The marks distribution of 100 students of a college is as follows.

Marks	10-20	20-40	40-60	60-70	70-80	80-90	90-100
No. of students	8	15	21	16	20	8	12

   i) Find the highest marks of lowest 30% of the students.
   ii) Find the lowest marks of top 40%of the students.
   iii) Find the limits marks of middle 50% of the students.

9. Write down the properties of correlation coefficient. The coefficient of rank correlation between two observations is found to be 0.143. If the sum of the squares of differences in rank is given to be 48, find the value of n.
10. A variate takes values a, ar, ar^2,….. ar^{n-1} each with frequency unity. Show that A.M x H.M=$(G.M)^2$. Also prove that A.M. > G.M. >H.M.

Group C

Very short answer question (*Any six*). [6x2 = 12]

11. What are the scopes of statistics in the field of physical and biological science?
12. What is classification? Discuss its type.
13. Prove that sum of deviation taken from arithmetic mean is zero.
14. Define skewness and its types.
15. Define ordinal scale.
16. What is bar diagram? Discuss different types of bar diagram.
17. Define measures of central tendency and its types.
18. Define moments with its types.

The End