

B.Sc. 1st Semester (General or Honours) Examination, 2021 (CBCS)
Subject: Statistics
Paper: CC-1(General)/ GE-1 (Honours)

The figures in the margin indicate full marks.
Candidates are requested to give their answers in their own word.

The notations and symbols have their usual meanings.

(Statistical Methods)

Time: 2 Hours

Full Marks: 40

Answer any *eight* from the following:

5 × 8 = 40

1. What do you mean by relative frequency of a class? Prove that sum of relative frequency is always 1. Distinguish between class mark and class boundary.
2. What is an Ogive? What purpose is served by such a graph and what are its uses?
3. Prove that $A.M \geq G.M \geq H.M$ for seven natural numbers.
4. Give reasons for the circumstances in which it would be preferable to use i) A.M. ii) Median and iii) Mode.
5. Show that the standard deviation is greater than mean deviation about mean. When will the two be equal?
6. Establish the relation between the central moments and raw moments of a frequency distribution and hence express the first two moments in terms of raw moments.
7. Find the value of correlation coefficient from the relation $ax + by + c = 0$ and interpret your result.
8. What do you mean by regression lines? Find the angle between the two regression lines.
9. If $\text{Var}(x) = \text{Var}(y)$, prove that the correlation coefficient between $x + y$ and $x - y$ is zero.
10. What is rank correlation? Prove that Spearman's rank correlation coefficient lies between -1 and +1.