

2018

CBCS

1st Semester

STATISTICS

PAPER—C1T

(Honours)

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Descriptive Statistics

1. Answer any *five* questions :

5×2

- (a) Distinguish between quantitative and qualitative data.

(Turn Over)

- (b) When a histogram is useful?
- (c) Show that root mean square deviation is minimum when measured from mean.
- (d) Give the relation between Gini's co-efficient and variance.
- (e) How can co-efficient of variation be used as measure of consistency for two independent data sets?
- (f) Define Pearson's co-efficient of skewness and show how it can be used to determine the skewness of a distribution.
- (g) Define Laspeyre's and Poasche's index number formulae.
- (h) Define odds ratio measure.

2. Answer any *four* questions :

4×5

- (a) Distinguish between line diagram and ratio chart.
- (b) Show that mean absolute deviation is minimum when measured from the median.

- (c) Why is Fisher's index number an ideal index number ?
- (d) How can you obtain the median of a frequency distribution graphically ?
- (e) For a frequency distribution, the upper class boundary bears a constant ratio r to the lower class boundary. If x_i and f_i be respectively the class mark and frequency of the i th class and G be the geometric mean,

show that
$$\log G = \log x_1 + \frac{\log r}{n} \sum_{i=1}^k (i-1) f_i$$

where
$$n = \sum_{i=1}^k f_i .$$

- (f) Using Cauchy Schwartz inequality, prove that $b_2 \geq b_1 + 1$, where the notations have their usual meanings.

3. Answer any *one* question :

1×10

(a) (i) Define the two lines of regression.

(ii) Obtain the angle between the two lines of regression.

4+6

(b) Derive the Spearman's Rank correlation based on two sets of individuals for tied case.
