Bachelor of Science (B.Sc.) Semester—I (C.B.S.) Examination

STATISTICS

(Descriptive Statistics—I)

Compulsory Paper—2

Time : Three Hours] [Maximum Marks : 50

N.B. :— All questions are compulsory and carry equal marks.

1. (A) Define a population and a sample. Compare a population survey with a sample survey.

   (B) Explain the questionnaire method of data collection. Differentiate between a questionnaire and a schedule. What is a pilot survey ? 5+5

OR

   (E) Write notes on the following types of data :

   (i) Qualitative (ii) Quantitative

   (iii) Nominal (iv) Ordinal

   (v) Discrete (vi) Continuous

   A questionnaire includes the following three questions :

   (a) Gender

   (b) Marks

   (c) Mother's level of education : Matriculation/Graduation/Post-graduation.

   Identify the data type generated by these questions. 10

2. (A) In a dichotomous classification of two attributes, define :

   (i) Stochastic independence

   (ii) Positive association

   (iii) Negative association.

   Define Yule's coefficient of association and coefficient of colligation. Develop a relationship between them. Define perfect association and find the value of Yule's coefficient of association when there is perfect positive association and perfect negative association between the attributes. 10

OR

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(E) Write short notes on :

(i) Controlled experiments and observational studies.

(ii) Methods of conducting population census. 10

3. (A) Explain tabular representation of data giving various parts of a table. State the advantages and limitations of tabular presentation.

Prepare a blank table that can present the year-wise and gender-wise classification of admissions in a school. Identify the type of classification that is used in this case. 10

OR

(E) Distinguish between :

(i) Class limits and class boundaries.

(ii) Inclusive and exclusive classification.

(iii) Cumulative frequencies of less than type and greater than type.

(iv) Discrete and continuous variable.

(v) Relative frequency and frequency density.

Give appropriate examples in each of the above cases. 10

4. (A) Explain the construction of the following graphs to present the frequency distribution of a continuous variable :

(i) Histogram

(ii) Cumulative frequency diagrams

(iii) Frequency polygon

(iv) Frequency curves. 10

OR

(E) Explain the diagrams that are used to represent percentages. State the advantages and limitations of diagrammatic representation of data. Give two examples where these diagrams can be used. 10

5. Solve any **10** of the following questions :

(A) Give one example of each of the following cases : Observations are measurements on :

(i) Nominal scale

(ii) Ordinal scale.

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(B) Which operations are not meaningful if observations are measurements on interval scale ? Justify your answer.

(C) Give an example of each of the following :

(i) Time series data

(ii) Cross-Sectional data.

(D) In a dichotomous classification of two attributes, derive the condition on (AB) so that $(\alpha\beta)$ is not negative.

(E) In a dichotomous classification of 'n' attributes derive

(i) total number of ultimate class frequencies and

(ii) total number of frequencies of all orders.

(F) Define odds ratio.

(G) Prepare the stem and leaf chart for the following data :

328, 285, 315, 345, 290, 293, 330, 338, 340, 287, 295, 305, 319, 321, 309, 312, 311, 289, 288, 290, 295, 306, 311, 308, 335.

(H) Explain geographical classification with an example.

(I) Explain the use of tally marks in preparing a frequency distribution of a discrete variable.

(J) Which are the diagrams suitable to represent the values of two related variables given for different time periods ?

(K) Complete the following sentences :

In simple bar diagram

(i) Lengths of the bars are _____.

(ii) Breadths of the bars are _____.

(L) What is a pictogram ? 1×10

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