

2015

(1st Semester)

STATISTICS

FIRST PAPER

(Descriptive Statistics)

Full Marks : 55

Time : 2½ hours

(PART : B—DESCRIPTIVE)

(Marks : 35)

The questions are of equal value

UNIT—I

1. Describe primary and secondary data, and also mention the important sources of the both.

OR

2. How to construct a table with two factors? What are the different components of the table?

G16/27a

(Turn Over)

UNIT—II

3. What are the different measures of central tendency? Explain each with their merits and demerits.

OR

4. Define mode and evaluate the mode for the given data set :

x	0-4	4-8	8-12	12-16	16-20	20-24	24-28
f	3	5	10	15	8	7	4

UNIT—III

5. Discuss the different measures of dispersion with their merits and demerits.

OR

6. Prove that for any discrete distribution, standard deviation is not less than mean deviation from the mean.

UNIT—IV

7. Define coefficient of correlation and show that it is independent of change of origin and scale.

OR

8. Explain the meaning of regression and find the regression line Y on X and X on Y for the given values :

$$E(X) = 2; E(Y) = 4; V(X) = V(Y) = 9$$

$$\text{and } r = 0.5$$

UNIT—V

9. What do you understand by multiple correlation coefficients? Show that

$$R_{1.23}^2 = \frac{r_{12}^2 + r_{13}^2 - 2r_{12}r_{13}r_{23}}{1 - r_{23}^2}$$

OR

10. Define the independence of two attributes and derive the condition for independence.

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(PART : A—OBJECTIVE)

(Marks : 20)

The figures in the margin indicate full marks for the questions

SECTION—A

(Marks : 5)

Put a Tick (✓) mark against the correct answer in the brackets provided for it : 1×5=5

1. The value of 5th decile is

(a) first quartile ()

(b) third quartile ()

(c) median ()

(d) Both (a) and (b) ()

2. The mode of 12, 13, 15, 12, 14, 12, 15, 12, 13, 12, 15, 15, 14, 15, 19 is

(a) 5 ()

(b) 15 ()

(c) 12 ()

(d) None of the above ()

3. The value of β_2 is always

(a) less than unity ()

(b) equal to 1 ()

(c) greater than unity ()

(d) All of the above ()

4. If X and Y are two independent variables, then the value of covariance is

(a) zero ()

(b) two ()

(c) one ()

(d) Both (a) and (b) ()

5. The limit for Yule coefficient of association (Q) is

(a) $0 < Q < 2$ ()

(b) $0 \leq Q \leq 1$ ()

(c) $-1 \leq Q \leq 1.5$ ()

(d) $-1 \leq Q \leq 1$ ()

SECTION—B

(Marks : 15)

Answer the following questions :

3×5=15

1. What are the different methods of data collection?
Describe one of them in brief.

2. Define median and find the median for—

(a) 22, 15, 17, 19, 26, 24, 29, 19

(b) 5, 2, 13, 11, 25, 20, 19, 18, 8

5. The limit for Yule coefficient of association (Q) is

(a) $-0 < Q < 2$

(b) $0 \leq Q \leq 1$

(c) $-1 \leq Q \leq 1$

(d) $-1 \leq Q < 1$

3. Define Pearson's coefficient of skewness and also mention its limitation.

Answer the following questions (10)

1. What are the different methods of data collection? Describe one of them in brief.

4. Show that $r^2(x, y) = b_{xy} \cdot b_{yx}$.

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(PART : A - OBJECTIVE)

(Marks : 20)

The figures in the margin indicate full marks for the questions

SECTION - A

(Marks : 5)

Put a Tick (✓) mark against the correct answer in the
bracket provided for it.

1. The value of 5th decile is

(i) first quartile

(ii) third quartile

(iii) median

(iv) Both (i) and (ii)

5. Define attributes with suitable example.

(a) 15, 14, 13, 19

(b) 5, 1, 1

(c) 15, 1, 1

(d) 12, 1, 1

(e) None of the above

3. The value of β_2 is always

(a) less than unity

(b) equal to 1

(c) greater than unity

(d) All of the above ***