

Total No. of Questions : 11

**11T2KJ8**

**1610**

**STATISTICS**

Maximum Marks : 40

Paper – Second Term

Time : 2½ Hours

Note : In case of failures/re-appear cases and fresh private candidates; i.e. candidates appearing for the first time after having passed Secondary School Examination, marks secured out of 40 shall be raised proportionately as if obtained out of 60.

**(Long Answer Type Questions)**

1. Define Moments. Establish the relationship between the Raw moments and the Central moments. 5

*Or*

What do you mean by 'Skewness' in Statistics ? Explain briefly the methods of measuring Skewness.

2. What is Correlation ? Discuss different types of Correlation. Also prove  $|r| \leq 1$ .

*Or*

Define Rank correlation. Write down Spearman's formula for Rank correlation P. What are the limits of P. Interpret the case, when P, assumes the minimum value. 5

3. A problem in Statistics is given to five Students A, B, C, D and E. Their chances of solving it are 5

respectively. What is the probability that the problem will be solved ?

*Or*

Define the following terms :

- (a) Mutually Exclusive events,
- (b) Independent events,
- (c) Exhaustive events and
- (d) Equally likely events.

4. What is stratified Sampling ? Give its advantages and disadvantages. 5

**Or**

What is Complete Enumeration ? Discuss the advantages of Sample Survey over Complete Enumeration.

**(Short Answer Type Questions)**

5. Find the Coefficient of Skewness from the following information : 3

Difference of two quartiles = 8

Mode = 11

Sum of two quartiles = 22

Mean = 8

6. From a bag containing 10 black and 20 white balls, a ball is drawn at random. What is the probability that it is black ? 3

7. What are Sampling and Non-sampling errors ? 3

8. State the conditions, when two attributes A and B may be termed : 3

(i) Independent,

(ii) Positively associated and

(iii) Negatively associated.

9. Prepare a 3 x 3 table for the following information and calculate Yule's coefficient of Association : 3

$$N = 1500, (A) = 1117, (B) = 360, (AB) = 35$$

**(Very Short Answer Type Questions)**

10. The following very short answer type questions of one mark, each may be answered in a few words or few sentences or as may be required :

- (a) Define Probability of an even 'E' and prove 1
- (b) What are Attributes and order of Classes ? 1
- (c) What is Scatter diagram ? 1

### **(Multiple Choice Type Questions)**

11. In case of the following two multiple chose type questions, Choose the correct/most appropriate answer and write it in your Answer-book :

- (i) Karl Pearson's coefficient of correlation lies between 1
  - (a) 0 ad 1
  - (b) – 3 ad 3
  - (c) – 1 and 1
  - (d) None of the above
- (ii) Additional theorem of Probability states that if two events A and B are mutually exclusive, the probability of occurrence of either A or B is given by
  - (a)  $P(A) + P(B)$
  - (b)  $P(B) \times P(A)$
  - (c)  $P(A) + P(B) - P(A \cap B)$
  - (d) None of the above.