

## BCA-3005

### B. C. A. (Third Semester) EXAMINATION, 2022-23

(New Course)

Paper Fifth

ELEMENTS OF STATISTICS

Time : Two Hours ] [ Maximum Marks : 75

**Note :** This paper consists of three Sections A, B and C. Carefully read the instructions of each Section in solving the question paper. Candidates have to write their answers in the given answer-copy only. No separate answer-copy (B Copy) will be provided.

Section—A

(Short Answer Type Questions)

**Note :** All questions are compulsory. Answer the following questions as short answer type questions. Each question carries 5 marks.

1. (A) Write about difference between primary and secondary data.

- (B) Discuss the importance of classification in statistics.
- (C) The average marks of 100 students were found to be 30. Later, it was discovered that a score of 32 was misread as 23. Find the corrected mean of the 100 students.
- (D) Find the harmonic mean of 8, 16, 24.
- (E) The smallest value in a set of observations is 20 with a range of 45. Find the largest observation and the co-efficient of range.
- (F) In how many ways can a student choose 5 courses out of 8 courses if 2 courses are compulsory for every student ?
- (G) How many different words can be formed with the letters of the word 'MISSISSIPPI' ?
- (H) If two balls are drawn from a bag containing 2 white, 4 red and 5 black balls, what is the chance that both the balls are black ?
- (I) Write a short note on statistical quality control.

**Section—B**  
**(Long Answer Type Questions)**

**Note :** This section contains four questions from which *one* question is to be answered as long question. Each question carries 15 marks.

2. By Grouping method locate mode from the following data :

Class	Frequency
0-5	5
5-10	7
10-15	9
15-20	18
20-25	16
25-30	15
30-35	6
35-40	3

*Or*

3. Prepare "Less than" and "More than" cumulative frequency distribution. Also draw ogives from the following data :

Weight (in kg)	Frequency
30-35	12
34-40	18
40-45	27
45-50	20
50-55	17
55-60	6
60-65	5

*Or*

4. Calculate semi-interquartile range and coefficient of quartile deviation from the following data :

Marks	No. of students
0-10	6
10-20	5
20-30	8
30-40	15
40-50	7
50-60	6
60-70	3

Or

5. Calculate standard deviation and coefficient of variation from the following data giving the age distribution of 542 members :

Age group (in years)	No. of members
20-30	3
30-40	61
40-50	132
50-60	153
60-70	140
70-80	51
80-90	2

## Section—C

## (Long Answer Type Questions)

**Note :** This section contains four questions from which *one* question is to be answered as long question. Each question carries 15 marks.

6. (a) There are 5 men and 4 ladies to dine at a round table. In how many ways can they seat themselves so that no two ladies are together ?

P. T. O.

- (b) If  $1 \leq r \leq n$ , prove that :

$$C(n, r) + C(n, r-1) = C(n+1, r)$$

Or

7. (a) A pair of dice is tossed twice. Find the probability of scoring 7 points :

- (i) once  
(ii) at least once

- (b) A problem in statistics is given to the three students A, B and C whose chance of solving it are  $\frac{1}{2}$ ,  $\frac{2}{3}$ ,  $\frac{1}{4}$  respectively. What is the probability that the problem is solved ? <https://www.csjmuonline.com>

Or

8. The number of defects in 18 rolls of cloth each of 150 meters length is given by 3, 5, 8, 9, 4, 2, 5, 9, 6, 4, 8, 12, 7, 5, 10, 10, 7 and 5.

Draw C-chart and give your comment.

*Or*

9. The following table gives the result of inspection of 15 samples of 100 items each taken on working days. Draw a np-chart :

Sample No.	No. of Defectives
1	9
2	17
3	8
4	7
5	12
6	5
7	11
8	16
9	14
10	15
11	10
12	6
13	7
14	18
15	10