A (Printed Pages 4)

(21222) Roll No. .....

B.C.A.-III Sem.

18015

B.C.A. Examination, Dec.-2022

Elements of Statistics

(BCA-305)

Time : Three Hours] *[Maximum Marks : 75*

Note : Attempt questions from **all** sections as per Instructions.

Section-A

Note : Attempt **all** five question. 3×5=15

1. Differentiate between.
   (i) Population and Sample
   (ii) Attributes and Variables.
2. Define harmonic and geometric means.
3. What is coefficient of variation? Discuss the situation where it is used.

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4. Define the following.
   (i) Random experiment
   (ii) Mutually exclusive events
   (iii) Independent events
5. Discuss process and product control.

Section-B

Note : Attempt any **two** questions.

7½×2=15

6. Describe various measure of dispersion with their applications.
7. In a college 50% of science students are girls, while 25% of the girls are science students. If 40% of the students in the college are girls, what are the probabilities that a randomly selected student from the college :
   (i) is a boy and reads science
   (ii) is a boy when it is given that the student is not a science student.

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8. Obtain median and mode of the following data:

Class interval	Frequency
0-10	8
10-20	12
20-30	21
30-40	17
40-50	21
50-60	9
60-70	8

Section-C

Note : Attempt any **three** questions. 15×3=45

9. Explain the main control charts for attributes and obtain their control limits. Discuss the advantages and dis advantages of control chart of variable and attributes.
10. Define permutation and combination. In how many ways can 8 people be seated in a row if :
    (i) there are no restrictions on the seating arrangement.
    (ii) there are 4 men and 4 women and not 2 men or 2 women can sit next to each other.

(iii) there are five men and they must sit next to each other.

11. Define frequency distribution, frequency curve, frequency polygon and ogive. Draw 'less' than' and 'more than' ogives for the following data and hence find the median.

Class interval	Frequency
0-5	2
5-10	6
10-15	7
15-20	5
20-25	12
25-30	10
30-35	8
35-40	14

12. What do you mean by classification and tabulation? Explain the purpose of classification and tabulation of data.
13. Write short notes on the following :
    (i) Control charts for $\overline{X}$ and R
    (ii) Specification limits and tolerance limits
    (iii) Applications of statistics in different fields.