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(21223) Roll No. .....

B.C.A. - III Sem.

# 18015

## B.C.A. Examination, Dec.-2023

## 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 questions. 3×5=15

1. What is statistics? Discuss its uses.
2. What is meant by central tendency? Describe the various measures of it.
3. Define coefficient of variation.
4. Define mutually exclusive events and independent events.
5. What do you understand by Statistical Quality control.

**P.T.O.**

## Section - B

**Note :** Attempt any **two** questions.

7.5×2=15

6. The mean age of a group of 100 children was 9.35 years. The mean age of 65 of them was 10.51 years. What was the mean age of the remaining children?

7. Define dispersion. Calculate the standard deviation of the following distribution :

| Marks | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 |
|---|---|---|---|---|---|
| No. of students | 5 | 10 | 15 | 12 | 4 |

8. Explain how $\bar{X}$ and R charts are drawn in practice. How would you interpret the points falling outside the control limits on these charts?

## Section - C

## (Long Answer Type Questions)

**Note :** Attempt any **three** questions.

15×3=45



9. (a) Find the mode from the the following frequency distribution :

| Class-interval | 0-9 | 10-19 | 20-29 | 30-39 | 40-49 | 50-59 |
|---|---|---|---|---|---|---|
| Frequency | 4 | 13 | 30 | 15 | 10 | 5 |

(b) Define classification. Discuss the types of classification with their examples.

10. (a) Give mathematical definition of probability.

(b) A bag contains 6 green, 7 blue and 2 red balls, 3 balls are drawn from it. Find the probability that one green, one blue and one red ball is drawn.

11. Write down the definition merits and demerits of Arithmetic mean, median and mode.

12. (a) Explain additive law of probability by giving suitable examples.

(b) Three coins are tossed simultaneously. Find the probability of getting :

(i) Two heads

(ii) at least one head.

13. Distinguish between defect and defective. Give some examples of defects for which the C-chart is applicable. How do you calculated control limits for a c-chart? Discuss the assumptions and approximations involved in the calculations.