

Roll No. \_\_\_\_\_

**22/2103****B.C.A. (Third Semester)****Examination, 2022****Fifth Paper****(Elements of Statistics)***Time : 1:30 Hours ]**[ Maximum Marks : 75*

**Note :** Attempt any **five** question. **All** questions carry equal marks. The answer to given questions should not exceed 250 words each.

**Note :** Graph paper may be provided on demand.

✓ 1. (a) Define statistics and discuss its scope. 10

(b) Discuss the concept of population and sample. 5

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✓ 2. (a) Differentiate between attribute and variable. 5

(b) Describe cumulative frequency and draw the cumulative frequency curves from the data given below: 10

Class intervals	Frequency
0-10	12
10-20	19
20-30	26
30-40	28
40-50	17
50-60	10

✓ 3. Describe measures of central tendency and also discuss the requirements of a good measure of Central tendency. 12+3=15

✓ 4. Find out the arithmetic, geometric and harmonic means for the values of 4 and 9 and interpret the results. 11+4=15

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5. Discuss relative measures of dispersion and their uses. 15

6. (a) Differentiate between experiments and random experiments. 5

(b) Distinguish between mutually exclusive and complementary events. 5

(c) Describe union and intersections of two events. 5

✓ 7. (a) Define probability and conditional probability. 4

(b) Discuss independence of two events. Find the value of  $P(A \cup B)$  and  $P(A/A \cup B)$  if  $P(A) = \frac{1}{3}$  and  $P(B) = \frac{3}{4}$

11

✓ 8. Ten coins are tossed. What are the probabilities in a single tossing of getting:

5+5+5=15

(i) Nine or more heads

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(ii) Less than 2 heads

(iii) Exactly 5 heads

9. Describe control charts for  $\bar{X}$  and write down the steps of construction of its control limits for: 5+5+5=15

(i) Standard are given

(ii) Standards are not given

10. Discuss control charts for number of defects (C-chart) limits of it in case of standards given and not given. Also explain the applications of it. 4+4+4+3=15

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