C (Printed Pages 4)

Roll No.

21/1090

B.C.A. (Third Semester)

Examination, 2021

Fifth Paper

(Elements of Statistics)

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

Note : Attempt any **five** questions. **All** questions carry *equal marks.*

Note : The answers to *short answer* type questions should not exceed 200 words and the answers to long answer type questions should not exceed 500 words.

1. (a) Describe raw data, variable and attribute with suitable example. 6

(b) Explain inclusive and exclusive class intervals, class width, class density. 4

(c) Discuss the scope of statistics. 5

2. Describe various measures of central tendency and their calculation procedure for ungrouped data. Also calculate the median and mode for given series:

11, 8, 5, 10, 15, 17, 19, 23, 10, 7, 10, 12, & 10. 10+5=15

3. Discuss various relative measures of dispersion. What are the properties of a good measure of dispersion. 12+3=15

4. (a) The mean and standard deviation of two distributions of 100 and 150 items are 50, 5 and 40, 6 respectively. Find the mean and standard deviation of all the 250 items taken together. 10

(b) A committee consists of ten people.

It is decided to appoint a chairman, a vice-chairman and a secretary-treasurer. How many different ways can this be done? 5

5. (a) A bag of 1000 items contains 10% defectives and 90% good items. If a sample of five items is drawn at random from the bag. Find out the probability of observing one or less defectives if the sampling is carried out with replacement. 10

(b) If 0 represents a non-response to a mailed questionnaire and 1 represents a response, depict the set of outcomes representing to three out of four questionnaires. 5

6. (a) If $P(A)=0.5$, $P(B)=0.4$ and $P(A \cap B)=0.2$, then show that A and B are mutually exclusive events. 6

(b) Events A and B have the following probability structure:

$P(A \cap B) = 1/6; P(A \cap \bar{B}) = 2/9;$

$P(\bar{A} \cap B) = 1/3$

Find the probability of $(\bar{A} \cap \bar{B})$ and also check that A and B are independent. 9

7. Write short notes on any **five** of the following: 5×3=15

(a) Conditional probability.

(b) Independence of two events.

(c) Exhaustive events.

(d) Complementary events.

(e) Classification of data.

(f) Applications of permutations and combinations.

(g) Random experiment.

(h) Mutually exclusive events.