3. (i) In how many ways can 3 boys and 3 girls sit in a row if the boys and the girls are each to sit together?

(ii) In how many ways can 3 boys and 3 girls sit in a row if only the boys must sit together?

4. Explain the terms :
   (i) Control limits.
   (ii) Tolerance limits.
   (iii) Specification limits.

5. Differentiate between variance and coefficient of variation.

Section-B

(Short Answer Questions)

Note : Attempt any **two** questions. $7\frac{1}{2} \times 2 = 15$

6. Define probability. Suppose that A and B are mutually exclusive events for which P(A)=0.3 and P(B)=0.5. What is the probability that (a) either A or B occurs (b) A occurs but B does not (c) both A and B occur.

7. Explain the construction and interpretation of mean chart and range chart.

8. What is median? Calculate median of the following data :

Class Interval	Frequency
15-25	4
25-35	11
35-45	19
45-55	14
55-65	0
65-75	2

Section-C

(Detailed Answer Questions)

Note : Attempt any **three** questions. $15 \times 3 = 45$

9. (a) Explain and illustrate the uses of statistics in commerce and business.

   (b) Discuss the steps involved in tabulation and classification of data.

10. What is dispersion? Explain mean deviation, standard deviation and Range with their uses.

11. Describe arithmetic, harmonic and geometric means for grouped and ungrouped data with their limitations.

12. Define process and product control. Discuss the charts for proportion of defectives and number of defects. Obtain control limits of a suitable chart to be used for the following problem.

A survey is conducted to observe defects on TV set from 10 samples (sample size=10) and the results are given below:

Sample No.	No. of defects
1	5
2	4
3	5
4	6
5	4
6	4
7	5
8	6
9	7
10	8

Does any sample show out of control signal?

13. Write short notes on the following :
    (a) Statistical Quality Control.
    (b) Absolute and relative measure of dispersion.
    (c) Frequency distribution and cummulative frequency distribution.

D

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(20221)

Roll No. .....

B.C.A.-III Sem.

18015

B.C.A. Examination, Dec.-2020

ELEMENTS OF STATISTICS

(BCA-305)

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

Note : Attempt questions from **all** the sections as per instructions.

Section-A

(Very Short Answer Questions)

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

1. Define the following :
    (i) Frequency curve and frequency Polygon.
    (ii) Assignable and random causes.
    (iii) Equally likely and mutually exclusive events.
2. An average rainfall of a city from Monday to saturday is 0.3 inch. Due to heavy rainfall on sunday, the average rainfall for the week increased to 0.5 inch. What was the rainfall on Sunday?