This question paper contains 5 printed pages]

GK—25—2023

FACULTY OF SCIENCE AND TECHNOLOGY

BCA (First Year) (First Semester) EXAMINATION

APRIL/MAY, 2023

(CBCS/Revised Pattern)

ELEMENTS OF STATISTICS

(Thursday, 27-4-2023) **Time : 10.00 a.m. to 1.00 p.m.**

Time—Three Hours *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Assume suitable data, if required.

(*iv*) Non-programmable calculator is allowed.

(*v*) Each question carries equal marks.

1. Attempt any *five* of the following : 15

(*a*) Explain collection of data.

(*b*) Write drawbacks of Statistics.

(*c*) Define probability of an event.

(*d*) Explain Standard deviation.

(*e*) Explain Simple correlation.

(*f*) Explain n factorial (n!).

(*g*) What is the probability of occurring 53 Sunday's in a leap year ?

P.T.O.

2. Attempt any *three* of the following : 15

(*a*) Explain types of data.

(*b*) Write scope of statistics in field of Economics.

(*c*) Give any *two* definitions of statistics.

(*d*) Calculate median from the following data :

Class	Frequency
20—25	12
25—30	19
30—35	22
35—40	16
40—45	11
45—50	7

(*e*) Calculate mode from the following data :

Weight	No. of Students
37	8
25	10
28	15
17	11
45	9
54	6

3. Attempt any *three* of the following : 15

(*a*) Define correlation. Explain positive and negative correlation.

(*b*) Writes merits and demerits of mean.

(*c*) Explain dispersion.

(*d*) Calculate variance from the following data :

X	F
5—10	8
10—15	13
15—20	22
20—25	12
25—30	9
30—35	2

(*e*) Find standard deviation from the following data :

Score	Freq.
0—15	5
15—30	15
30—45	17
45—60	13
60—75	6

P.T.O.

4. Attempt any *three* of the following : 15

(*a*) Explain Karl Pearson's coefficient of correlation.

(*b*) Explain regression equations.

(*c*) Calculate coefficient of correlation from the following data :

X	Y
7	8
2	3
9	2
4	10
6	4

(*d*) Obtain the regression equation of X on Y from the following data :

X	Y
5	4
9	7
7	6
6	3
4	5

(*e*) Find means of x and y from the two regression lines :

$$2X - 3Y + 4 = 0$$

$$7X + 2Y - 4 = 0$$

5. Attempt any *three* of the following : 15

(*a*) Explain sample space.

(*b*) Explain event.

(*c*) If A and B are any *two* not mutually exclusive event then prove that :

$$P(A \cup B) = P(A) + P(B) - P(A \cap B).$$

(*d*) If one card is drawn from a pack of 52 cards then what is the probability of obtaining ace or face card.

(*e*) If one ball is drawn from a bag containing 25 balls, numbered from 1 to 25, then what is the probability that the number on drawn ball will be either prime or perfect square ?