 

# 2023

*Time : 3 hours*

*Full Marks : 50*

*Candidates are required to give their answers in their own words as far as practicable.*

*The figures in the margin indicate full marks.*

*Answer from **all** the Groups as directed.*

## Group – A

## (Objective Type Questions)

1. [A] Fill in the blanks of the following : 1×5 = 5

(a) The second quartiles is also called _____.

(b) The range of simple correlation coefficient is _____.

(c) bxy. byx is euqal to _____.

(d) _____ is the difference between the maximum and minimum data entries in the set.

(e) The arithmetic mean of first ten natural number is _____.

[B]. Choose the correct answer of the following : $1 \times 5 = 5$

(a) The modal value of 1, 2, 3, 4, 5, 2, 3, 4, 2, 3, 4, 2, 2, and 2 is :

(i) 5 (ii) 4

(iii) 3 (iv) 2

(b) In which distribution, mean, mode and median are same ?

(i) Normal distribution

(ii) Binomial distribution

(iii) Poisson distribution

(iv) None of these

(c) In an experiment, the sum of the probability of all possible events is euqal to :

(i) 0 (ii) 1

(iii) –1 (iv) None of these

(d) For any two events A and B :

(i) $P(A \cap B) = P(A).\ P(B \mid A)$

(ii) $P(A \cap B) = P(B).\ P(A \mid B)$

(iii) $P(A \cap B) = P(A).\ P(B)$

(iv) Both (i) and (ii)

(e) The standard deviation of the first 'n'natural number is :

(i) $\frac{n^2-1}{12}$ (ii) $\frac{n(n^2-1)}{12}$

(iii) $\frac{n^2-1}{12n}$ (iv) None of these

## Group – B

## (Short-answer Type Questions)

2. Answer any **four** questions of the following : $3\times4 = 12$

(a) Define correlation and types of correlation.

(b) Define central tendency of the data and its types with example.

(c) What do you mean by skewness ?

(d) What is probability ? Show that the probability of an event lies between 0 and 1.

(e) Find the mean and variance of Binomial destribution.

(f) What are uses of regresion Analysis ?

## Group – C

## (Long-answer Type Questions)

3. Answer any **four** questions of the following : $7 \times 4 = 28$

(a) Define statistics, its scope and importance.

(b) Discuss the Poisson distribution. Obtain its mean and varience. Show that the Poisson distribution is a limiting case of Binomial distribution.

(c) Discuss normal distribution with its properties.

(d) Define probability. Explain addition and multiplication rule / theorem giving suitable examples.

(e) Define correlation coefficent. Show that correlation coefficent lies between – 1 to + 1.

(f) What do you mean by standard deviation ? Explain with example. Write down its merits and demerits.