2023

Time : 3 hours

Full Marks : 70

Pass Marks : 32

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 : 2×5 = 10

   (a) Poisson distribution is a limiting case of _____ distribution.

   (b) The probability of happening of any event lies between _____.

   (c) The mean of first 'n' natural number (1, 2, ... n) is _____.

(d) The median value of 1, 2, 2, 3, 5, 6, 5 _____.

(e) In a symmetrical distribution, mean, median and mode are _____.

B] Choose the correct answer from the following alternative : 2×5 = 10

(a) The variance of x is 3. The varience of x + 3 will be :

(i) 3 (ii) 6

(iii) 9 (iv) $\sqrt{3}$

(b) If X and Y are random variable, then :

(i) $E(X + Y) = E(X) + E(Y)$

(ii) $E(X + Y) = E(X) \cdot E(Y)$

(iii) $E(X + Y) = E(X) - E(Y)$

(iv) None of these

(c) In a distribution, Mean = Median = Mode, then it will be :

(i) Poisson distribution

(ii) Binomial distribution

(iii) Normal distribution

(iv) None of these

(d) All possible outcomes of a random experiment is known as :

(i) Event

(ii) Primary event

(iii) Sample space

(iv) None of these

(e) bxy. byx is equal to :

(i) r (ii) $\sqrt{r}$

(iii) r^2 (iv) None of these

Group – B

(Short-answer Type Questions)

Answer any four questions of the following : $5 \times 4 = 20$

2. Define measure of Dispersion of the data and its types with examples.

3. What do you mean by Kurtosis ?

4. Discuss the properties of Normal Distribution.

5. Find the moment generating function of Poisson Distribution.

6. Discuss various scopes of statistics with examples.

7. What are uses of Regression Analysis ?

Group – C

(Long-answer Type Questions)

Answer any **three** questions of the following :

$10 \times 3 = 30$

8. Discuss the Binomial Distribution. Obtain its M.G.F. Mean and Variance.

9. What do you mean by Raw and Central Moments ? Discuss first four Central and Raw Moments.

10. Define Correlation Coefficient and its types with examples.

11. What do you mean by moment generating function and its uses ?

12. Obtain Mean and Variance of first 'n' natural number (1, 2, 3, ... n).