B–21–X

Roll No. .....

Total No. of Questions : **31**] [Total No. of Printed Pages : **8**

12th ARF(SZ)JKUT2024-25

321–X

STATISTICS

Time : 3 Hours] **[Maximum Marks : 70**

SECTION–A

(OBJECTIVE TYPE QUESTIONS) 1 each

1. If $P(A \cap B) = P(A)\ P(B)$, the events A and B are ..... .

2. Mathematical probability is also known as ..... probability.

3. For Bernoulli distribution with probability p of a success and q of a failure the relation between mean and variance that hold is :

(A) mean < variance

(B) mean > variance

(C) mean = variance

(D) mean ≤ variance

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4. If $P = \pm 1$, the two regression lines are coincident. (True/False)

5. If A and B are positively associated, then :

(A) $(AB) > \frac{(A)(B)}{N}$

(B) $(AB) < \frac{(A)(B)}{N}$

(C) $(AB) = \frac{(A)(B)}{N}$

(D) None of these

6. If all A's are B's, then the coefficient of association Q is equal to :

(A) 1

(B) –1

(C) 0

(D) ∞

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7. Vital index for ascertaining population growth is :

(A) A good measure

(B) A rough measure

(C) Useless

(D) None of these

8. Stratified sampling is appropriate when population is ..... .

9. The forecasts on the basis of a time series are :

(A) Centpercent time

(B) Time to a great extent

(C) Never true

(D) None of these

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10. Which of the following is a set of few program icons made available in the taskbar for its immediate access ?

(A) Taskbar

(B) Quick Launch Program icons

(C) Start Menu

(D) Status Bar

SECTION–B

(VERY SHORT ANSWER TYPE QUESTIONS) 2 each

11. Define Conditional Probability.

12. Define discrete random variable.

13. Define Regression.

14. Define Price Index.

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15. Define Systematic Sampling.

16. What are Non-sampling errors ?

17. Define Time Series.

18. What is Irregular Trend ?

19. What is a Secular Trend ?

SECTION–C

(SHORT ANSWER TYPE QUESTIONS) 3 each

20. State addition law for two events.

21. From the following data find out the missing frequencies :

$$(AB) = 100,\ (A) = 300,\ (N) = 1000,\ (B) = 600$$

22. From the following data, find out whether the data are consistent or not :

$$(A) = 100,\ (B) = 150,\ (AB) = 140,\ N = 500$$

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23. Write the characteristics of index number.

24. What are time and factor reversal tests ?

25. Define the following :

(a) Crude death rate

(b) Specific death rate

26. Differentiate between general fertility rate and specific fertility rate.

27. What are the requisites of a good sample.

28. Differentiate between software and hardware.

SECTION–D

(LONG ANSWER TYPE QUESTIONS) 5 each

29. Define Poisson distribution. Obtain its mean and variance.

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Or

With the usual notations, find P for a binomial variate X, if $n = 6$ and

$$9P(X = 4) = P(X = 2)$$

30. From the following data, obtain the two regression equations :

X	Y
6	9
2	11
10	5
4	8
8	7

Or

Explain when two regression lines coincide. State the properties of regression coefficients.

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31. Solve the following LPP by graphical method :

Minimize :

$$Z = 20x + 10y$$

Subject to constraints :

$$x + 2y \leq 40$$

$$x + y \geq 30$$

$$4x + 3y \geq 60$$

$$x, y \geq 0$$

Or

Define Linear Programming Problem. Explain the following terms :

(i) Feasible solution

(ii) Basic feasible solution

(iii) Optimum solution

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