

B-21-X

Roll No.

Total No. of Questions : 31]

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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 $\leq$ variance

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Turn Over

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) ∞

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

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 :

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

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. <https://www.jkboseonline.com>
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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(7)

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.

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