



NARSIMHAREDDY ENGINEERING COLLEGE
(UGC AUTONOMOUS)

II B.Tech I Semester (NR25)
MATHEMATICAL AND STATISTICAL FOUNDATIONS (25MA301)

UNIT-V
Applied Statistics

Multiple Choice Questions

1. The method of least squares is used to [b]

- A) Find the largest error
- B) Fit the best curve to the given data
- C) Find the median
- D) Find the mode

2. In the least squares method, the quantity minimized is [b]

- A) $\sum e$
- B) $\sum e^2$
- C) $\sum x$
- D) $\sum y$

3. The equation of the straight line used in curve fitting is [b]

- A) $y = ax^2 + bx + c$
- B) $y = a + bx$
- C) $y = ab^x$
- D) $y = \frac{a}{x}$

4. A second-degree parabola is represented by [c]

- A) $y = a + bx$
- B) $y = ax + b$
- C) $y = a + bx + cx^2$

D) $y = ae^{bx}$

5. The exponential curve is generally written as [b]

A) $y = a + bx$

B) $y = ab^x$

C) $y = ax + b$

D) $y = a + bx + cx^2$

6. Correlation measures the [b]

A) Area under the curve

B) Degree of relationship between two variables

C) Standard deviation

D) Mean value

7. Karl Pearson's correlation coefficient is denoted by [c]

A) β

B) ρ

C) r

D) λ

8. The range of Pearson's correlation coefficient is [c]

A) 0 to 1

B) -2 to 2

C) -1 to 1

D) 1 to 2

9. If $r = 1$, the correlation is [c]

A) Negative

B) Zero

C) Perfect positive

D) Weak

10. Regression is mainly used for [a]

A) Prediction

B) Ranking

C) Classification

D) Sampling

11. There are how many regression lines [b]

A) One

B) Two

C) Three

D) Four

12. Spearman's rank correlation is used for [b]

A) Grouped data

B) Ranked data

C) Frequency distribution

D) Continuous data only

13. The symbol used for Spearman's rank correlation coefficient is [c]

A) r

B) β

C) ρ

D) μ

14. In Spearman's rank correlation, d represents [b]

A) Mean

B) Difference between paired ranks

C) Standard deviation

D) Variance

15. Regression lines always pass through the point [b]

A) (0,0)

B) $(\bar{X}, \bar{Y})$

C) (1,1)

D) (a ,b)

Fill in the Blanks

1. The method used to obtain the best fitting curve is _____.

Answer: Least Squares Method

2. In least squares fitting, the sum of _____ is minimized.

Answer: Squares of errors (or residuals)

3. The equation of the fitted straight line is _____.

Answer: $y = a + bx$

4. A second-degree parabola is represented by _____.

Answer: $y = a + bx + cx^2$

5. The exponential curve can be written as _____.

Answer: $y = ab^x$

6. Correlation measures the _____ between two variables.

Answer: Degree of relationship

7. Karl Pearson's coefficient of correlation is denoted by _____.

Answer: r

8. The value of Pearson's correlation coefficient always lies between _____ and _____.

Answer: -1 and +1

9. A correlation coefficient of +1 indicates _____ positive correlation.

Answer: Perfect

10. Regression is mainly used for _____ future values.

Answer: Predicting

11. The regression line of Y on X predicts the value of _____.

Answer: Y

12. Spearman's rank correlation is suitable for _____ data.

Answer: Ranked (or Ordinal)

13. In Spearman's formula, d denotes the _____ between paired ranks.

Answer: Difference

14. The regression coefficients are represented by _____ and _____.

Answer: b_{yx} and b_{xy}

15. The two regression lines intersect at the point _____.

Answer: $(\bar{X}, \bar{Y})$