



UNIT-V: Applied Statistics

1. The method of least squares is mainly used for:

- A) Testing hypotheses B) Finding probabilities
 C) **Curve fitting** D) Sampling

Answer: C

2. The equation of a straight line is:

- A) $y = ax^2 + bx + c$ B) $y = a + bx$ C) $y = ab^x$ D) $y = a/x$

Answer: B

3. The method of least squares minimizes:

- A) Sum of observations B) **Sum of squares of errors**
 C) Sum of deviations D) Sum of frequencies



Answer: B

4. A second-degree parabola has the equation:

- A) $y = a + bx$ B) $y = ab^x$ C) **$y = a + bx + cx^2$** D) $y = a/x$

Answer: C

5. Correlation measures:

- A) Difference between variables
 B) **Degree of relationship between variables**
 C) Average of variables
 D) Variance of variables

Answer: B

6. The correlation coefficient is denoted by:

- A) μ B) σ C) **r** D) β

Answer: C

7. The value of the correlation coefficient lies between:

- A) 0 and 10 B) **-1 and +1** C) -10 and +10 D) 0 and 1

Answer: B

8. A correlation coefficient of +1 indicates:

- A) No correlation B) Negative correlation C) **Perfect positive correlation** D) Perfect negative correlation

Answer: C

9. A correlation coefficient of -1 indicates:

- A) Perfect positive correlation
B) **Perfect negative correlation**
C) Zero correlation
D) Partial correlation

Answer: B

10. A correlation coefficient of 0 indicates:

- A) Perfect correlation B) Negative correlation
C) Positive correlation D) **No linear correlation**



Answer: D

11. Regression analysis is used to:

- A) Test hypotheses
B) **Predict one variable from another**
C) Calculate variance
D) Measure sampling error

Answer: B

12. The regression line of Y on X is used to estimate:

- A) X from Y B) **Y from X** C) Variance D) Rank correlation

Answer: B

13. Spearman's rank correlation is based on:

- A) Means B) Standard deviations C) **Ranks** D) Variances

Answer: C

14. Rank correlation is useful when:

- A) Data are continuous only
 C) Sample size is zero
 B) **Data are in the form of ranks**
 D) Population variance is known

Answer: B

15. If two variables increase together, they have:

- A) Negative correlation
 B) Zero correlation
 C) **Positive correlation**
 D) No association

Answer: C

16. If one variable increases while the other decreases, the correlation is:

- A) Positive B) **Negative** C) Zero D) Perfect positive

Answer: B

17. Which of the following is a measure of correlation?

- A) Mean B) Median C) **Karl Pearson's coefficient** D) Mode



Answer: C

18. Regression equations are obtained using:

- A) Chi-square method
 B) **Least squares method**
 C) Sampling method
 D) Randomization

Answer: B

19. Which method is used to fit a straight line to data?

- A) Random sampling
 B) Maximum likelihood
 C) **Least squares method**
 D) Chi-square test

Answer: C

20. Spearman's rank correlation coefficient is represented by:

- A) r B) ρ (**rho**) C) β D) α

Answer: B

Fill in the Blanks

1. The **least squares** method is used for curve fitting.
2. The equation of a straight line is **$y = a + bx$** .
3. The equation of a second-degree parabola is **$y = a + bx + cx^2$** .
4. The method of least squares minimizes the **sum of squares of errors**.
5. Correlation measures the **relationship** between two variables.
6. The correlation coefficient is denoted by **r**.
7. The value of **r** lies between **-1 and +1**.
8. A value of **+1** indicates perfect positive correlation.
9. A value of **-1** indicates perfect negative correlation.
10. A value of **0** indicates **no linear correlation**.
11. Regression analysis is used for **prediction**.
12. The regression line of Y on X predicts **Y** from **X**.
13. **Karl Pearson's** coefficient measures linear correlation.
14. **Spearman's** method is used for rank correlation.
15. Rank correlation is based on the **ranks** of observations.
16. Positive correlation means both variables move in the **same** direction.
17. Negative correlation means the variables move in **opposite** directions.
18. The symbol for Spearman's rank correlation coefficient is **ρ (rho)**.

