

## Worksheet: Correlation in Artificial Intelligence

Class: XI / XII

Topic: Correlation – Types and Pearson's Correlation Coefficient

### Multiple Choice Questions

1. What does correlation measure in data analysis?
  - A. Causation between variables
  - B. Strength of relationship between two variables
  - C. Difference between variables
  - D. Accuracy of prediction
2. Which of the following best describes positive correlation?
  - A. Both variables decrease together
  - B. One variable increases, the other decreases
  - C. Both variables increase or decrease together
  - D. Variables are unrelated
3. If the value of correlation coefficient  $r = -1$ , it indicates:
  - A. No correlation
  - B. Perfect positive correlation
  - C. Perfect negative correlation
  - D. Weak correlation
4. Which value of correlation coefficient indicates no correlation?
  - A. 1
  - B. -1
  - C. 0
  - D. 0.5
5. Which of the following is an example of negative correlation?
  - A. Height and weight

B. Temperature and ice-cream sales

C. Speed and time taken to cover fixed distance

D. Study time and marks

6. Which correlation occurs when changes in one variable do not affect the other?

A. Positive correlation

B. Negative correlation

C. Zero correlation

D. Linear correlation

7. Pearson's correlation coefficient is used to measure:

A. Non-linear relationship

B. Linear relationship

C. Causal relationship

D. Random relationship

8. The formula of Pearson's correlation coefficient (r) is:

A.  $r = \Sigma(X+Y)/n$

B.  $r = \Sigma XY / (\Sigma X \Sigma Y)$

C.  $r = [n\Sigma XY - \Sigma X \Sigma Y] / \sqrt{([n\Sigma X^2 - (\Sigma X)^2][n\Sigma Y^2 - (\Sigma Y)^2])}$

D.  $r = \Sigma(X - Y)^2$

9. The value of Pearson's correlation coefficient always lies between:

A. 0 and 1

B. -1 and 0

C. -1 and +1

D.  $-\infty$  and  $+\infty$

10. In Artificial Intelligence, correlation is mainly used to:

A. Store data

B. Detect patterns and relationships

C. Remove data

D. Encrypt data

## Answer Key

1. B

2. C

3. C

4. C

5. C

6. C

7. B

8. C

9. C

10. B