

Dr. Babasaheb Ambedkar Open University
Term End Examination January – 2026

Course	: BSCCS	Date	: 19/02/2026
Subject Code	: BSCCS-204	Time	: 03:00pm to 05:15pm
Subject Name	: Introduction to Statistics	Duration	: 02.15 Hours
		Max. Marks	: 70

Section A

Answer the following (Attempt any three) (30)

1. Explain the concepts of Arithmetic Mean, Median, and Mode. Discuss their merits, demerits, and practical applications with suitable examples.
2. Explain regression analysis. Describe the regression equations and their properties with suitable examples.
3. Define probability. Explain classical and axiomatic approaches to probability with examples.
4. Explain Poisson distribution and its importance in real-life situations.
5. Explain the concept of economic inequality. Describe Lorenz Curve and Gini Coefficient in detail.

Section B

Answer the following (Attempt any four) (20)

1. Define moments and explain their significance in statistical analysis.
2. Differentiate between positive correlation, negative correlation, and zero correlation.
3. What are dependent and independent events? Explain with examples.
4. Write the mean and variance of a binomial distribution.
5. What is standard normal distribution? Explain briefly.
6. What is seasonal variation? Explain briefly.

Section C

Part – A (Multiple Choice Questions)

(10)

1. Which of the following averages is not affected by extreme values?
A Arithmetic Mean B Geometric Mean
C Harmonic Mean D Median
2. Which of the following is a relative measure of dispersion?
A Range B Quartile Deviation
C Standard Deviation D Coefficient of Variation
3. A distribution with a longer right tail is said to be:
A Symmetrical B Negatively skewed
C Positively skewed D Mesokurtic
4. The value of Karl Pearson's coefficient of correlation lies between:
A 0 and 1 B -1 and +1
C $-\infty$ and $+\infty$ D -0.5 and +0.5
5. Regression analysis is mainly used for:
A Predicting the value of a variable B Measuring association
C Measuring dispersion D Testing hypothesis
6. The probability of an event A given that event B has occurred is denoted by:
A $P(A/B)$ B $P(A+B)$
C $P(A \cap B)$ D $P(B/A)$

- 7 A variable that can take only countable values is called:
A Continuous variable B Random variable
C Discrete random variable D Independent variable
- 8 Binomial distribution is based on which of the following assumptions?
A Variable probability B Fixed number of trials
C Infinite trials D Continuous outcomes
- 9 In a normal distribution, mean, median, and mode are:
A Different B Mean > Median > Mode
C Mean < Median < Mode D Equal
- 10 Which component of time series shows long-term movement?
A Seasonal variation B Cyclical variation
C Trend D Irregular variation

Part – B (Do as Directed)

(10)

State whether the following statements are true or false

- 1 Arithmetic Mean is capable of further algebraic treatment.
- 2 Range is calculated using all observations of a distribution.
- 3 A symmetrical distribution has zero skewness.
- 4 Correlation measures both the direction and degree of relationship between variables.
- 5 Regression coefficients are independent of change of origin but not of scale.
- 6 The probability of a sure event is equal to 0.
- 7 The sum of probabilities of all possible values of a discrete random variable is equal to 100.
- 8 Fisher's Ideal Index satisfies both time reversal and factor reversal tests.
- 9 Seasonal variations occur due to irregular and unpredictable factors.
- 10 The closer the Lorenz Curve is to the line of equality, the greater the income inequality.
