

Course Code: SOC-C-304

Course Name: Social Statistics and Computer Analysis

Note: This assignment consists of four questions. You must answer a total of two questions in every assignment in about 1000-1500 words.

We expect you to attempt each question in logical manner in **own hand-writing**. You may attempt question in English or Hindi.

नोट: इस असाइनमेंट में चार प्रश्न हैं। आपको कुल दो प्रश्नों का उत्तर लगभग 1000-1500 शब्दों में देना होगा। हम आपसे अपेक्षा करते हैं कि आप प्रत्येक प्रश्न को अपनी हस्तलिपि में तार्किक ढंग से हल करें। आप अंग्रेजी या हिंदी में प्रश्न का प्रयास कर सकते हैं।

Assignment-1

Marks: 07 (3.5*2)

Q 1: The marks scored by 10 students in a mathematics test are as follows:

45, 50, 60, 70, 50, 55, 65, 70, 55, 60.

- (a) Calculate the mean of the marks.
- (b) Find the median of the marks.
- (c) Determine the mode of the marks.

Q 2: The heights (in cm) of 6 students are recorded as:

150, 160, 155, 170, 165, 160.

- (a) Find the range of the heights.
- (b) Calculate the standard deviation of the given data.

Q 3: The daily wages (in ₹) of 8 workers are given below:

200, 210, 190, 220, 230, 240, 180, 250.

- (a) Arrange the data in ascending order.
- (b) Calculate the quartile deviation of the wages.

Q 4: The following data represents the number of hours spent studying in a week by 5 students:

4, 6, 8, 10, 12.

- (a) Compute the mean of the data.
- (b) Find the mean deviation about the mean for the given data.

Assignment-2

Marks: 07 (3.5*2)

Q 1: Explain Karl Pearson's Coefficient of Correlation. How is it used to measure the relationship between two variables? What are its assumptions and limitations?

Q 2: Define Spearman's Rank Correlation Coefficient. How does it differ from Karl Pearson's Coefficient of Correlation? In what situations is rank correlation preferred?

Q 3: What is Regression Analysis? Differentiate between regression and correlation. How are regression equations used to predict values?

Q 4: Explain the difference between positive correlation, negative correlation, and zero correlation with suitable examples.

Assignment-3

Marks: 06 (3*2)

Q 1: What do you mean by hypothesis testing? Explain the steps involved in testing a hypothesis. Differentiate between the null hypothesis and the alternative hypothesis.

Q 2: What is the Student's t-test? Discuss its significance and the situations in which it is used. Explain the difference between a one-sample t-test and a two-sample t-test.

Q 3: What is the F-test? Describe its purpose in hypothesis testing. In which scenarios is the F-test applied? Discuss the assumptions of the F-test.

Q 4: Explain the Chi-Square Test of significance. How is it used to test the independence of two categorical variables? What are the conditions for applying the Chi-Square test?