Statistics Subjective Question Paper

**Time: 90 minutes**  
**Total Marks: 50**

Section A: (30 Marks)

1. How do you interpret the mean of a dataset in terms of central tendency?
2. If a dataset is [4, 9, 11, 15, 17, 9, 20], find mean and mode and what is the median if an additional value 10 is added to the dataset?
3. Compute the variance and standard deviation of the dataset: [12, 15, 14, 16, 18].
4. What is covariance and correlation?
5. Define skewness and the difference between positive and negative skewness.
6. What is the difference between a discrete and a continuous probability distribution?
7. Explain the binomial distribution and give an example of its application.
8. Difference between normal distribution and standard normal distribution.
9. Describe a scenario in data science where calculating the mean would be crucial.
10. How would you interpret a z-score in the context of a normal distribution?

Section B: (20 Marks)

1. **A jar contains 5 red, 3 blue, and 2 green marbles. If two marbles are drawn at random without replacement, what is the probability that both are red? Show your calculations.** \*[6 Marks]\*
2. **Discuss the importance of measures of central tendency and variability in summarizing data. Provide examples of how they can be used in real-world scenarios.**  
   \*[6 Marks]\*
3. **What is hypothesis testing? Explain the steps involved in conducting a hypothesis test with an example.**  
   \*[8 Marks]\*