

## Class 11, Unit Test, Statistics and Probability

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**Maximum Marks: 30**

**Duration: 1 hour**

2 Marks Questions

1. Find the mean deviation about the mean for the following data: 6, 7, 10, 12, 13, 4, 8, 12
2. The mean of 200 items is 48 and their standard deviation is 3. Find the sum of items and sum of squares of all items.
3. A class consists of 15 girls and 10 boys. The class teacher wants to choose two students from amongst them as class monitors. Find the probability that one boy and one girl are chosen.
4. Two students Anil and Ashima appeared in an examination. The probability that Anil will qualify the examination is 0.05 and Ashima will qualify the examination is 0.10. The probability that both will qualify the examination is 0.02. Find the probability of at least one of them will not qualify the examination.

3 marks Questions

5. Find the standard deviation in first 10 natural numbers.
6. If  $P(A) = 0.35$ ,  $P(A \cap B) = 0.25$ ,  $P(A \cup B) = 0.6$ , then find  $P(B)$  and  $P(\text{not } B)$ .
7. A bag contains 8 red and 5 white balls. Three balls are drawn at random. Find the probability that (a) all the three balls are white. (b) all the three balls are red. (c) one ball is red and two balls are white

5 marks Questions

8. The weights of coffee in 70 jars is shown in the following table :

Weight (in g)	Frequency
200 – 201	13
201 – 202	27
202 – 203	18
203 – 204	10
204 – 205	1
205 – 206	1

Determine mean and standard deviation of the above distribution.

Case Study (4 marks questions)

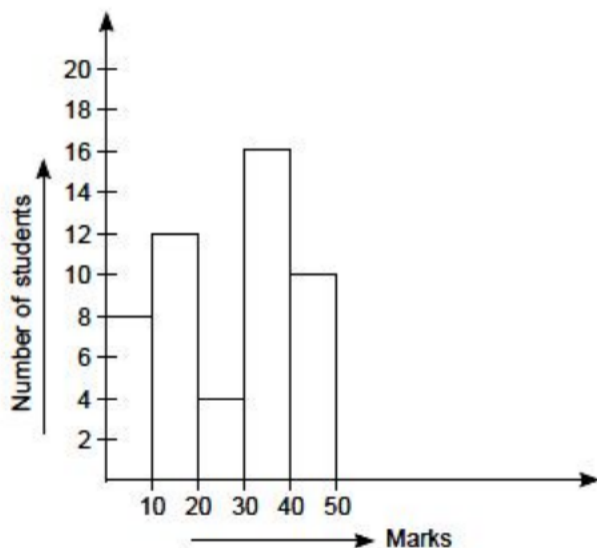
9. A teacher wants to analyze the performance of 50 students in a Mathematics test to identify patterns and trends in their marks distribution.

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The teacher collects the marks of all 50 students, organizes them into class intervals such as 0-10, 10-20, 20-30, and so on, and counts the number of students whose marks fall within each interval.

Using this data, the teacher creates a histogram to represent the frequency distribution.



- (i) Find the mean deviation about median.
  - (ii) Find the mean deviation about mean.
10. One of the four persons John, Rita, Aslam or Gurpreet will be promoted next month. Consequently, the sample space consists of four elementary outcomes  $S = \{\text{John promoted, Rita promoted, Aslam promoted, Gurpreet promoted}\}$ . You are told that the chances of John's promotion is same as that of Gurpreet, Rita's chances of promotion are twice as likely as John's. Aslam's chances are four times that of John
- (a) What is the probability that John got promotion?
  - (b) What is the probability that Rita got promotion?
  - (c) What is the probability that Aslam got promotion?
  - (d) What is the probability that Gurpreet got promotion?

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