

CHAPTER TEST: STATISTICS

Mathematics | Class IX (2026/STATIS/09/002)

Time: 1.5 Hours

Max. Marks: 40

General Instructions:

- All questions are compulsory.
- Section A contains 8 MCQs of 1 mark each.
- Section B contains 4 questions of 2 marks each.
- Section C contains 3 questions of 3 marks each.
- Section D contains 2 questions of 5 marks each.
- Use of calculators is strictly prohibited.

Section A (Multiple Choice Questions - 1 Mark each)

1. The class mark of the class 130 – 150 is:
 - (a) 130
 - (b) 135
 - (c) 140
 - (d) 145
2. In a frequency distribution, the mid-value of a class is 10 and the width of the class is 6. The lower limit of the class is:
 - (a) 6
 - (b) 7
 - (c) 8
 - (d) 12
3. If the mean of $x, x + 3, x + 5, x + 7, x + 10$ is 9, then the value of x is:
 - (a) 4
 - (b) 6
 - (c) 5
 - (d) 7
4. Data collected by the investigator himself is called:
 - (a) Primary data
 - (b) Secondary data
 - (c) Arrayed data

- (d) Grouped data
5. The difference between the maximum and minimum values of the data is called:
- Class size
 - Range
 - Class interval
 - Frequency
6. In a histogram, the area of each rectangle is proportional to:
- Class mark of the corresponding class interval
 - Class size of the corresponding class interval
 - Frequency of the corresponding class interval
 - Cumulative frequency of the corresponding class interval
7. The mean of first five prime numbers is:
- 3.6
 - 5.6
 - 5.4
 - 4.8
8. To construct a histogram for a frequency distribution with unequal class-widths, we calculate adjusted frequencies. The adjusted frequency for a class is:
- $\frac{\text{Frequency}}{\text{Class size}} \times \text{Minimum class size}$
 - $\frac{\text{Class size}}{\text{Frequency}} \times \text{Minimum class size}$
 - $\frac{\text{Frequency}}{\text{Total Frequency}} \times 100$
 - $\frac{\text{Class mark}}{\text{Frequency}} \times 10$

Section B (Very Short Answer Questions - 2 Marks each)

- If the mean of five observations $x, x - 1, x - 2, x - 3$ and $x - 4$ is 20, find the value of x .
- Find the class marks of the classes $10 - 20, 20 - 30$ and $30 - 40$.
- Define 'Frequency' and 'Class Size' with respect to a grouped frequency distribution.
- The following are the marks out of 50 obtained by 10 students: 23, 35, 48, 30, 25, 46, 13, 27, 32, 38. Find the range of the data.

Section C (Short Answer Questions - 3 Marks each)

- The mean of 50 observations was 80.4. But later on, it was discovered that 96 was misread as 69 at one place. Find the correct mean.
- Represent the following data using a Bar Graph:

Month	Jan	Feb	Mar	Apr	May
Units Sold	250	400	300	500	350

3. Using the Direct Method, find the mean of the following distribution:

x_i	5	10	15	20	25
f_i	7	10	15	8	10

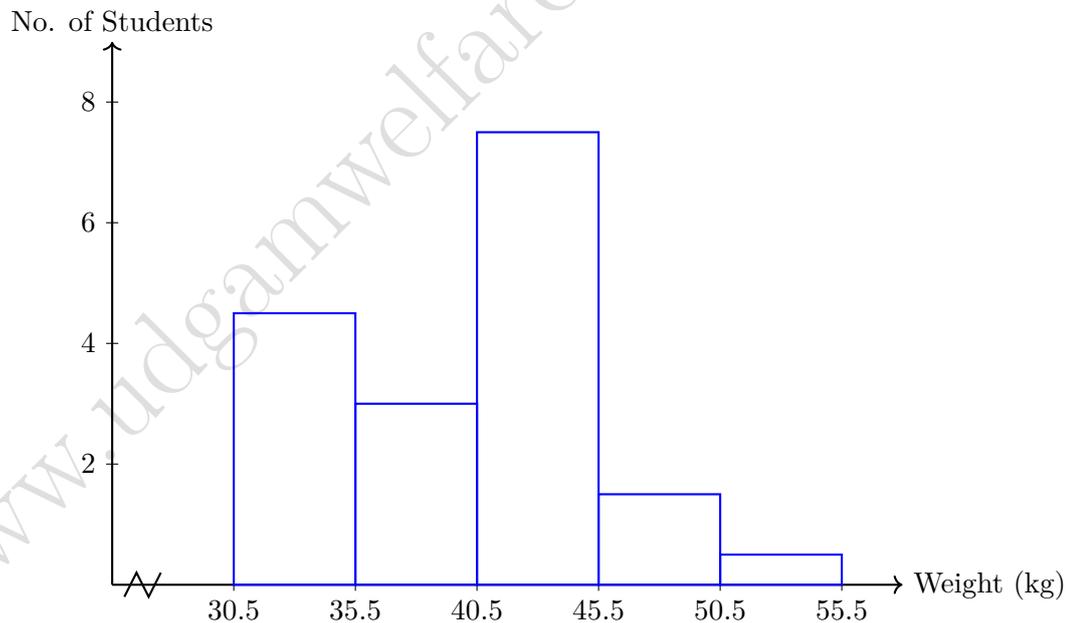
Section D (Long Answer Questions - 5 Marks each)

1. Find the mean of the following distribution using the **Assumed Mean Method**. Assume $A = 25$.

Class Interval	0-10	10-20	20-30	30-40	40-50
Frequency (f_i)	5	12	25	10	8

2. Construct a Histogram for the following frequency distribution of weights of 36 students of a class:

Weight (in kg)	Number of Students
30.5 - 35.5	9
35.5 - 40.5	6
40.5 - 45.5	15
45.5 - 50.5	3
50.5 - 55.5	1
55.5 - 60.5	2



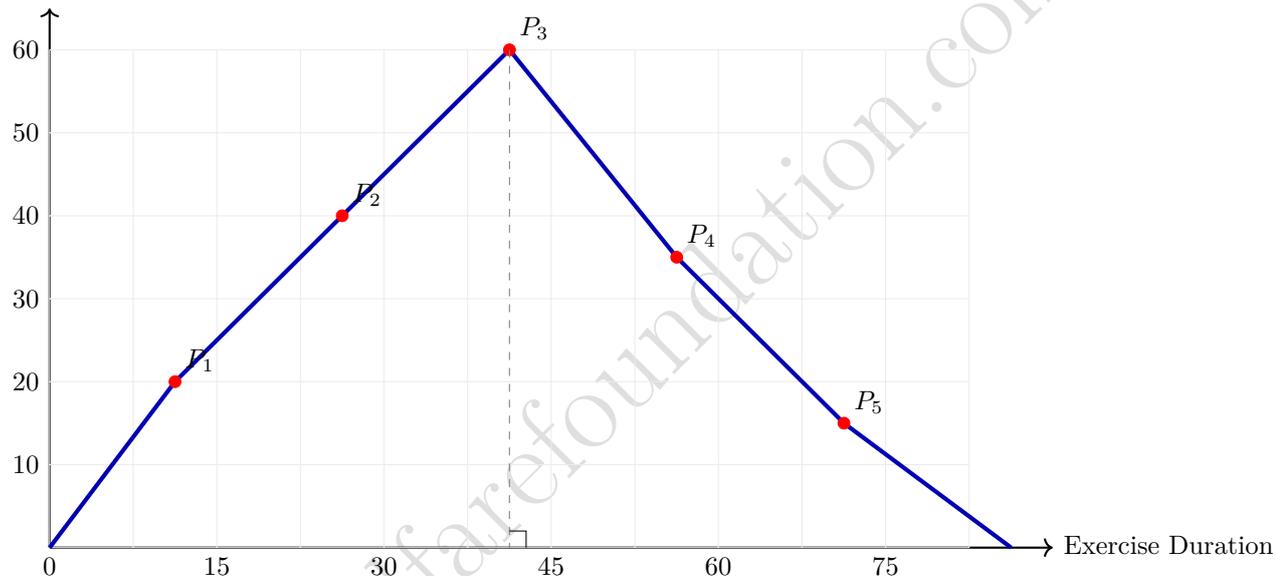
Section E

Case Study

The City Health Department recently conducted an extensive survey to monitor the daily physical activity levels of teenagers across various residential complexes. Data was collected regarding the

number of minutes spent in rigorous exercise by a group of 100 students to determine if local parks were being utilized effectively. The department organized the raw data into a grouped frequency distribution table, but several entries were obscured due to a technical error during digital transmission. To reconstruct the missing information, the lead statistician decided to plot a frequency polygon, which helped in identifying that the majority of students exercised for 30 to 45 minutes daily. This graphical representation allowed the city council to visualize the distribution's spread and calculate the mean activity time, ensuring that future health policies are based on accurate, representative data trends.

No. of Students (Frequency)



Multiple Choice Questions

1. Based on the frequency polygon provided, which class interval represents the 'Mode' of the exercise duration among the surveyed students?

- A) 15 – 30 minutes
- B) 30 – 45 minutes
- C) 45 – 60 minutes
- D) 0 – 15 minutes

2. What is the class mark of the interval that corresponds to the point P_4 on the frequency polygon?

- A) 50.5
- B) 55.0
- C) 52.5
- D) 45.0

3. If the Health Department decides to exclude all students who exercise for more than 60 minutes, how would the 'Range' of the resulting dataset be affected?

- A) The range would increase.
- B) The range would decrease.
- C) The range would remain constant.
- D) The range would double.

4. Suppose the mean exercise time was calculated as 35 minutes. If a systematic error was discovered where every student's time was under-recorded by 2 minutes, the corrected mean would be:

- A) 33 minutes
- B) 35 minutes
- C) 37 minutes
- D) 70 minutes

5. To convert this frequency polygon into a histogram, the area of the rectangle for the 30-45 class interval must be proportional to:

- A) The class mark
- B) The lower limit
- C) The frequency of that class
- D) The cumulative frequency