

CHAPTER TEST: STATISTICS (HOTS)

Mathematics | Class IX | (2026/STAT-HOTS/09/001)

Time: 1.5 Hours

Max. Marks: 40

General Instructions:

- All questions are compulsory.
 - Section A: 8 MCQs (1 mark each).
 - Section B: 4 Short Answer Questions (2 marks each).
 - Section C: 3 Short Answer Questions (3 marks each).
 - Section D: 3 Long Answer/HOTS questions (5 marks each).
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Section A: Multiple Choice Questions (1 Mark Each)

1. If the mean of $x, x + 3, x + 5, x + 7, x + 10$ is 9, the mean of the last three observations is:
(a) 10.33 (b) 10.5 (c) 11.33 (d) 11.5
 2. If each observation of a data is increased by a , then their mean:
(a) remains the same (b) becomes a times (c) is increased by a (d) is decreased by a
 3. In a frequency distribution, the class-mark 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
 4. The median of the data 26, 29, 42, 53, $x, x + 2, 70, 75, 82, 93$ is 65. The value of x is:
(a) 63 (b) 64 (c) 65 (d) 66
 5. The mean of 100 observations is 50. If one of the observations, which was 50, is replaced by 150, the resulting mean will be:
(a) 50.5 (b) 51 (c) 51.5 (d) 52
 6. A grouped frequency table with class intervals of equal sizes using 250 – 270 (270 not included) as one of the class intervals is constructed for the following data: 268, 220, 368, 258, 242, 310, 272, 342. The number of classes will be:
(a) 9 (b) 10 (c) 11 (d) 12
 7. If \bar{x} is the mean of x_1, x_2, \dots, x_n , then $\sum_{i=1}^n (x_i - \bar{x})$ is equal to:
(a) $n\bar{x}$ (b) 1 (c) 0 (d) $n - 1$
 8. The width of each of five continuous classes in a frequency distribution is 5 and the lower class-limit of the lowest class is 10. The upper class-limit of the highest class is:
(a) 15 (b) 25 (c) 35 (d) 40
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Section B: Short Answer Questions (2 Marks Each)

1. The mean of 25 observations is 36. Out of these observations if the mean of first 13 observations is 32 and that of the last 13 observations is 40, find the 13th observation.
2. Construct a frequency distribution table for the following marks of 20 students using equal class intervals, one of them being 0–10 (10 not included): 12, 5, 27, 21, 36, 42, 19, 25, 30, 48, 22, 15, 9, 31, 28, 41
3. The mean of 10 observations is 20. If 5 is subtracted from every observation, what will be the new mean? Verify using the property of arithmetic mean.
4. The following data represents the number of children in 20 families: 1, 2, 2, 1, 2, 0, 3, 4, 2, 1, 0, 4, 2, 2, 1, 2, 2, 3, 1. Find the mode and median of the data.

Section C: Short Answer Questions (3 Marks Each)

1. For a particular week, the average daily temperature of a city was 28°C . The average for Monday, Tuesday, Wednesday and Thursday was 26°C while that for Thursday, Friday, Saturday and Sunday was 30°C . Find the temperature on Thursday.
2. Draw a histogram for the following frequency distribution:

Class Interval	5–10	10–15	15–25	25–45	45–75
Frequency	6	12	10	8	15

(Note: Observe the unequal class widths and calculate adjusted frequencies.)

3. Find the mean of the squares of first five natural numbers. Compare it with the square of the mean of first five natural numbers.

Section D: Long Answer / HOTS Questions (5 Marks Each)

1. The following table shows the marks obtained by two sections of students in a Mathematics test. Represent the marks of the students of both the sections on the same graph by two frequency polygons. What inference can you draw from the graph?

Section A		Section B	
Marks	Frequency	Marks	Frequency
0–10	3	0–10	5
10–20	9	10–20	19
20–30	17	20–30	15
30–40	12	30–40	10
40–50	9	40–50	1

2. The mean of n observations x_1, x_2, \dots, x_n is \bar{x} . If $\sum_{i=1}^n (x_i - 5) = 20$ and $\sum_{i=1}^n (x_i - 8) = 14$, find the value of n and \bar{x} .
3. Given below are the seats won by different political parties in the polling outcome of a state assembly election:

Political Party	A	B	C	D	E	F
Seats Won	75	55	37	29	10	37

- (i) Draw a bar graph to represent the polling results.
- (ii) Which political party won the maximum number of seats?
- (iii) Calculate the Mean and Median of the seats won by the parties.