

Question 1

[Maximum mark: 1]

To estimate the average amount of time teenagers spend reading each week, a researcher surveys **180 students** from three schools.

These 180 students represent:

- A. The entire population
- B. A sample
- C. A census
- D. A continuous variable

Question 2

[Maximum mark: 1]

Which statement best describes a **simple random sample**?

- A. Individuals are chosen at fixed intervals from an ordered list.
- B. Every individual in the population has an equal chance of being selected, and each selection is independent.
- C. The population is divided into groups before selecting participants.
- D. Only volunteers are included in the study.

Question 3

[Maximum mark: 1]

Which statement correctly distinguishes a **histogram** from a **bar chart**?

- A. Histograms display continuous data with touching bars, whereas bar charts display categorical or discrete data with spaces between bars.
- B. Histograms are only used for percentages, while bar charts are used for frequencies.

- C. Bar charts always have bars touching each other.
- D. Histograms can only represent qualitative data.

Question 4

[Maximum mark: 1]

In a box-and-whisker plot, what does the **box** represent?

- A. The difference between the highest and lowest values.
- B. The interval containing the middle 50% of the data (from Q_1 to Q_3).
- C. The values between the minimum and median.
- D. The average and most frequent value.

Question 5

[Maximum mark: 1]

The interval between the first quartile (Q_1) and the third quartile (Q_3) contains approximately:

- A. 20% of the data
- B. 40% of the data
- C. 50% of the data
- D. 75% of the data

Question 6

[Maximum mark: 7]

A class recorded the following **16 mathematics quiz scores**:

8 13 11 15 12 10 14 9
7 12 10 16 11 9 13 8

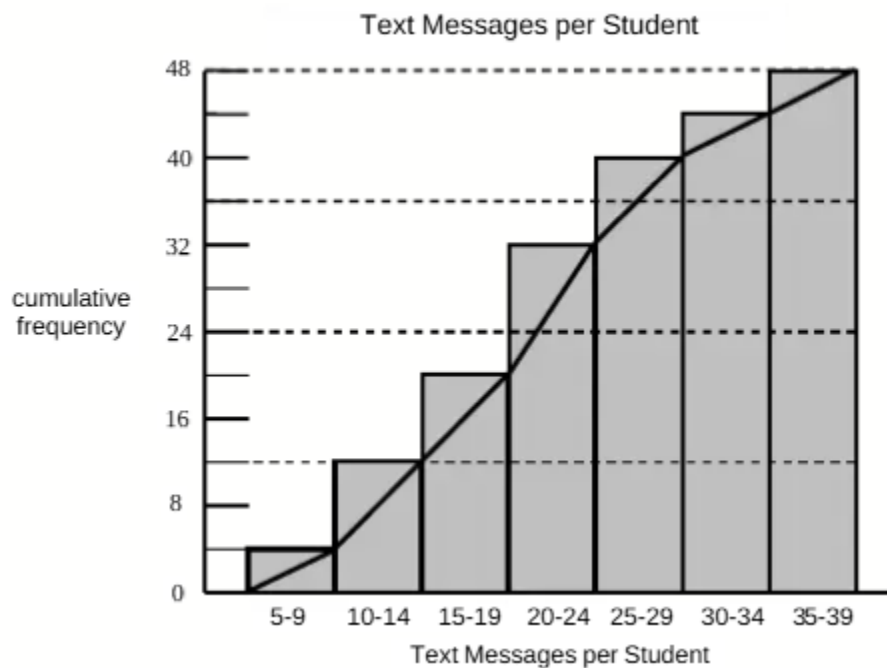
Calculate:

- The range of the scores.
- The mean score.
- The median score.
- The mode score.

Question 7

[Maximum mark: 8]

The graph below shows the cumulative frequency histogram and cumulative frequency polygon for the number of text messages received by students during one day.



- Determine the midpoint of the class interval **15–19**.
- Using the graph, estimate:
 - The upper quartile (Q_3).
 - The median number of text messages received.

Question 8

[Maximum mark: 6]

Sophia scored **68, 74, and 86** on her first three chemistry tests.

- What score must she obtain on the **fourth test** to achieve an average score of **75**?
- Suppose her four test scores have a range of **24**. Determine the possible score(s) she could have obtained on the fourth test.

Question 9

[Maximum mark: 5]

Consider the following discrete frequency distribution of mathematics test scores.

Test Score	Frequency
58	4
55	5
52	3
49	4
46	2
42	2

Calculate:

- The mean test score.
- The median test score.
- The mode test score.
- The range of the test scores.

Question 10

[Maximum mark: 5]

The table below shows the grouped frequency distribution of the heights (cm) of students.

Height h (cm)	Frequency
$140 \leq h < 145$	3
$145 \leq h < 150$	4
$150 \leq h < 155$	6
$155 \leq h < 160$	8
$160 \leq h < 165$	5
$165 \leq h < 170$	4

Answer the following:

- Determine the midpoint of the class interval $150 \leq h < 155$.
- Calculate the approximate mean height of the students.
- Identify the modal class interval.