UNIQUE STUDY POINT

By Sumeet Sahu

www.uniquestudyonline.com

Unique Study Point, Amitesh Nagar, Indore, MP | Contact: 8103405051

Class: VI	**Subject:** Science	**Session:** 2025-26
Chapter: 04 - Data Handling and Presentation	**Time:** 1½ Hours	**Max. Marks:** 40

General Instructions:

1. All questions are compulsory.
2. This question paper contains 20 questions divided into five sections A, B, C, D and E.
3. Section A contains 10 MCQs of 1 mark each.
4. Section B contains 4 questions of 2 marks each.
5. Section C contains 3 questions of 3 marks each.
6. Section D contains 1 question of 5 marks.
7. Section E contains 2 Case Study Based questions of 4 marks each.

SECTION A - Multiple Choice Questions (1 mark each)

Q1. Which of the following requires data collection?

(a) Finding the capital of India

(b) Finding the most popular game in your class

(c) Knowing the date of independence

(d) Learning the multiplication tables

Q2. In a frequency table, if Cricket appears 8 times, then 8 is called:

(a) Data

(b) Observation

(c) Frequency

(d) Scale

Q3. The key or scale in a pictograph tells us:

(a) The title of the graph

(b) What each symbol represents

(c) The date of data collection

(d) The source of data

Q4. A bar graph is more useful than a pictograph when:

(a) Data values are very large

(b) We want to show pictures only

(c) We have very little data

(d) Data is about people's names

Q5. The height or length of a bar in a bar graph represents:

(a) The color of the category

(b) The frequency of the category

(c) The name of the category

(d) The scale used

Q6. If ❀ = 4 flowers in a pictograph, how many flowers do ❀❀❀ represent?

(a) 3 flowers

(b) 8 flowers

(c) 12 flowers

(d) 16 flowers

Q7. When representing lengths of rivers, which type of bar graph is more suitable?

(a) Vertical bars

(b) Horizontal bars

(c) Circular bars

(d) Diagonal bars

Q8. An infographic is:

(a) A type of table

(b) A bar graph with artistic elements

(c) Only numbers and data

(d) A frequency distribution

Q9. Tally marks are grouped in sets of:

(a) 3

(b) 4

(c) 5

(d) 10

Q10. Which statement about bar graphs is FALSE?

(a) All bars must have equal width

(b) Bars should have uniform spacing

(c) Scale must be mentioned

(d) Bars can have any width we want

SECTION B - Short Answer Questions (2 marks each)

Q11. Why is it important to organize data before analyzing it? Give two reasons.

Q12. In a pictograph, if 🚲 = 8 bicycles, how would you represent 22 bicycles? Explain your answer.

Q13. What is the main advantage of using a bar graph with vertical bars for representing the heights of students in a class?

Q14. Differentiate between a pictograph and a bar graph in terms of data representation.

SECTION C - Short Answer Questions (3 marks each)

Q15. The shoe sizes of 20 students in a class are:
5, 6, 5, 7, 6, 5, 8, 6, 5, 6, 7, 5, 6, 5, 7, 6, 5, 6, 8, 5

(a) Organize this data in a frequency table using tally marks.
(b) Which shoe size is most common?
(c) How many students wear size 7 or larger?

Q16. Explain with an example why choosing the wrong scale in a bar graph can lead to misleading conclusions. What should be kept in mind while choosing a scale?

Q17. A teacher wants to display the number of books read by students in a month. Would you suggest using a pictograph or bar graph? Justify your answer with three points.

SECTION D - Long Answer Question (5 marks)

Q18. The favorite colors of 35 students are recorded as follows:
Blue, Red, Green, Blue, Yellow, Red, Blue, Green, Red, Blue, Yellow, Green, Blue, Red, Blue, Green, Red, Blue, Yellow, Green, Red, Blue, Green, Blue, Red, Yellow, Green, Blue, Red, Green, Blue, Red, Blue, Green, Red

(a) Prepare a frequency table with tally marks for this data. (2 marks)
(b) If you were to make a pictograph where one symbol = 2 students, how many symbols would you need for each color? Show your work. (2 marks)
(c) Which color is least popular among students? (1 mark)

SECTION E - Case Study Based Questions (4 marks each)

Q19. Case Study 1: Sports Participation

A school conducted a survey to find out which sport students prefer. The results are shown in a bar graph where:
• Cricket: 60 students
• Football: 45 students
• Basketball: 30 students
• Badminton: 35 students
• Hockey: 25 students

Based on this information, answer the following:
(a) How many students participated in the survey? (1 mark)
(b) Which two sports have a combined participation less than Cricket alone? (1 mark)
(c) If the school decides to provide extra coaching for sports with more than 40 students, which sports will get this benefit? (1 mark)
(d) What percentage of students prefer Cricket? (Round to nearest whole number) (1 mark)

Q20. Case Study 2: Weather Data

The maximum temperature (in °C) recorded in a city for one week is given below:
Monday: 32°C, Tuesday: 35°C, Wednesday: 33°C, Thursday: 36°C, Friday: 34°C, Saturday: 35°C, Sunday: 33°C

Based on this data, answer the following:
(a) Prepare a frequency table showing how many days had each temperature. (1 mark)
(b) On which day was the temperature highest? (1 mark)
(c) If you were to represent this data in a bar graph, what would be an appropriate scale? (1 mark)
(d) How does organizing temperature data help in understanding weather patterns? (1 mark)

DETAILED ANSWER KEY - PAPER 02

SECTION A - Answers to MCQs

1. (b) Finding the most popular game in your class

2. (c) Frequency

3. (b) What each symbol represents

4. (a) Data values are very large

5. (b) The frequency of the category

6. (c) 12 flowers

7. (b) Horizontal bars

8. (b) A bar graph with artistic elements

9. (c) 5

10. (d) Bars can have any width we want

SECTION B - Answers to Short Answer Questions

11.

Importance of organizing data:
- Makes it easier to identify patterns and draw conclusions
- Helps in quick counting and comparison of frequencies
- Reduces chances of errors in analysis
- Makes the data more presentable and understandable

12.

Representing 22 bicycles:
- Since 🚲 = 8 bicycles
- 22 ÷ 8 = 2 remainder 6
- We need 2 full bicycle symbols
- Plus 6/8 of a bicycle (which is 3/4 of a bicycle symbol)
- Total representation: 🚲🚲 and three-quarters of a bicycle symbol

13.

Advantage of vertical bar graph for heights:
- Height is measured vertically from the ground upward
- Vertical bars directly represent this upward measurement
- Makes it intuitive and easy to compare heights visually
- The tallest bar immediately shows the tallest student

14.

Difference between pictograph and bar graph:
Pictograph:
- Uses pictures or symbols to represent data
- More visually attractive and engaging
- Better for younger audiences or simple data

Bar graph:
• Uses rectangular bars of uniform width
• More precise and suitable for large values
• Better for complex data and detailed analysis

SECTION C - Answers to Short Answer Questions

15.

(a) Frequency Table:

Shoe Size	Tally Marks	Frequency
5	|||| ||||	9
6	|||| |||	8
7	|||	3
8	||	2

(b) Most common shoe size: 5 (frequency = 9)

(c) Students wearing size 7 or larger = 3 + 2 = 5 students

16.

Why wrong scale leads to misleading conclusions:
Example: If sales data shows Company A: 100 units, Company B: 110 units
• With scale 1 unit = 1: Graph shows significant difference
• With scale 1 unit = 50: Graph shows minimal difference
• This can manipulate visual perception

Points to keep in mind while choosing scale:
• Scale should fit the data range appropriately
• Should start from zero to avoid distortion
• Must allow clear visibility of differences
• Should be convenient (multiples of 2, 5, 10, etc.)

17.

Suggestion: Bar Graph

Justification:
1. Precision: Bar graphs can show exact numbers clearly, which is important for comparing student performance

2. Space efficiency: If numbers are large (e.g., 45 books), a bar graph is more space-efficient than drawing 45 symbols

3. Professional presentation: Bar graphs look more formal and are easier to create for this type of academic data

However, a pictograph using book symbols could also work well if the numbers are small and the display is for younger students.

SECTION D - Answer to Long Answer Question

18.

(a) Frequency Table:

Color	Tally Marks	Frequency
Blue	|||| |||| |||	13
Red	|||| ||||	10
Green	|||| ||||	9
Yellow	|||	3

(b) Pictograph symbols (1 symbol = 2 students):
• Blue: 13 ÷ 2 = 6.5, so 6 full symbols + half symbol (6½ symbols)
• Red: 10 ÷ 2 = 5, so 5 full symbols
• Green: 9 ÷ 2 = 4.5, so 4 full symbols + half symbol (4½ symbols)
• Yellow: 3 ÷ 2 = 1.5, so 1 full symbol + half symbol (1½ symbols)

(c) Least popular color: Yellow (frequency = 3)

SECTION E - Answers to Case Study Based Questions

19.

(a) Total students = 60 + 45 + 30 + 35 + 25 = 195 students

(b) Hockey (25) + Basketball (30) = 55 students
This is less than Cricket (60) alone

(c) Sports with more than 40 students:
• Cricket (60 students)
• Football (45 students)

(d) Percentage preferring Cricket:
= (60/195) × 100
= 30.77%
= 31% (rounded to nearest whole number)

20.

(a) Frequency Table:

Temperature (°C)	Frequency (Days)
32	1
33	2
34	1
35	2
36	1

(b) Highest temperature: Thursday (36°C)

(c) Appropriate scale: 1 unit length = 1°C
Reason: Temperature range is small (32-36°C), so 1 unit = 1°C will show differences clearly

(d) Benefits of organizing temperature data:
• Helps identify patterns (like which days are consistently hot)
• Makes it easier to compare temperatures across different days
• Helps predict weather trends for planning activities
• Makes data more understandable for weather forecasting

Made with ❤ by Sumeet Sahu

Unique Study Point, Amitesh Nagar, Indore, MP

Website: uniquestudyonline.com