UNIQUE STUDY POINT

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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. Arranging data in ascending or descending order is called:

(a) Frequency distribution

(b) Organizing data

(c) Data collection

(d) Graphing

Q2. |||| |||| ||| represents how many observations?

(a) 12

(b) 13

(c) 14

(d) 15

Q3. In a pictograph, if half a symbol is used, it represents:

(a) Half the value of one full symbol

(b) Double the value

(c) Zero value

(d) The same value as full symbol

Q4. Which is NOT a component of a good bar graph?

(a) Title

(b) Scale

(c) Pictures on bars

(d) Labels on axes

Q5. The main purpose of data handling is to:

(a) Make work difficult

(b) Extract meaningful information

(c) Increase the amount of data

(d) Hide information

Q6. If 🏠 = 15 houses, then how many houses do 🏠🏠🏠🏠 represent?

(a) 45 houses

(b) 50 houses

(c) 60 houses

(d) 75 houses

Q7. Spaces between bars in a bar graph should be:

(a) Different for each bar

(b) Uniform

(c) Very large

(d) Not required

Q8. A frequency table shows:

(a) Only categories

(b) Only numbers

(c) Categories and their frequencies

(d) Only graphs

Q9. Which graph is best for showing data about number of students absent each day?

(a) Circle graph

(b) Bar graph

(c) Line graph

(d) Scatter plot

Q10. Infographics combine data with:

(a) Only numbers

(b) Artistic and visual elements

(c) Audio elements

(d) Nothing else

SECTION B - Short Answer Questions (2 marks each)

Q11. How does a frequency table help in understanding data better than raw data? Explain with an example.

Q12. If in a pictograph 🌳 = 6 trees, how would you show 20 trees? Is it possible to show the exact number? Explain.

Q13. Why is it better to use vertical bars when representing heights of buildings in a bar graph?

Q14. State two situations where collecting data is necessary before making a decision.

SECTION C - Short Answer Questions (3 marks each)

Q15. The marks obtained by 24 students in a test (out of 10) are:
7, 8, 6, 7, 9, 8, 7, 6, 8, 7, 9, 8, 7, 6, 9, 8, 7, 10, 8, 7, 6, 9, 8, 7

(a) Make a frequency table for this data.
(b) Which mark was obtained by the maximum number of students?
(c) How many students scored more than 7 marks?

Q16. Compare pictographs and bar graphs. Under what circumstances would you prefer one over the other? Give reasons.

Q17. A shopkeeper wants to know which product sells the most in his shop. Explain the complete process he should follow from data collection to drawing conclusions.

SECTION D - Long Answer Question (5 marks)

Q18. The number of hours 28 students spent on homework in a week is recorded:
8, 10, 12, 8, 10, 8, 12, 10, 8, 12, 10, 8, 14, 10, 12, 8, 10, 12, 8, 10, 12, 10, 8, 12, 10, 14, 8, 10

(a) Organize this data in a frequency distribution table using tally marks. (2 marks)
(b) Create a pictograph where 🕛 = 2 students. (2 marks)
(c) What can you conclude about the study habits of these students? (1 mark)

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

Q19. Case Study 1: Canteen Sales

A school canteen recorded the sale of different items during lunch break:
Sandwich: 85 pieces, Samosa: 120 pieces, Juice: 95 bottles, Cold drink: 65 bottles, Burger: 70 pieces

Based on this data, answer the following:
(a) Which item was sold the most and which was sold the least? (1 mark)
(b) How many more samosas were sold than burgers? (1 mark)
(c) If you make a bar graph with scale 1 unit = 10 items, what would be the height of the bar for sandwiches? (1 mark)
(d) What can the canteen manager conclude from this data for future planning? (1 mark)

Q20. Case Study 2: Plant Growth Experiment

Students measured the height of a plant every week for 6 weeks. The heights (in cm) were:
Week 1: 5 cm, Week 2: 8 cm, Week 3: 11 cm, Week 4: 15 cm, Week 5: 19 cm, Week 6: 24 cm

Based on this data, answer the following:
(a) By how much did the plant grow in Week 4? (1 mark)
(b) In which week did the plant show maximum growth? (1 mark)
(c) What is the total growth of the plant over 6 weeks? (1 mark)
(d) Why is organizing this data in a table important for scientific experiments? (1 mark)

DETAILED ANSWER KEY - PAPER 03

SECTION A - Answers to MCQs

1. (b) Organizing data

2. (b) 13

3. (a) Half the value of one full symbol

4. (c) Pictures on bars

5. (b) Extract meaningful information

6. (c) 60 houses

7. (b) Uniform

8. (c) Categories and their frequencies

9. (b) Bar graph

10. (b) Artistic and visual elements

SECTION B - Answers to Short Answer Questions

11.

How frequency table helps:
Example: Raw data: Red, Blue, Red, Red, Green, Blue, Red
This is difficult to analyze quickly.

Frequency table:
Red: 4, Blue: 2, Green: 1

Benefits:
• Immediately shows which color appears most frequently
• Makes comparison easy
• Reduces confusion and saves time in analysis

12.

Showing 20 trees:
• Since 🌳 = 6 trees
• 20 ÷ 6 = 3 remainder 2
• We need 3 full tree symbols
• Plus 2/6 = 1/3 of a tree symbol

Showing exact number:
• It's difficult to show exactly because 1/3 of a symbol cannot be drawn precisely
• We can approximate by drawing 3 full symbols and a partial symbol representing about 1/3
• This shows the limitation of pictographs for certain numbers

13.

Advantage of vertical bars for building heights:
• Buildings stand vertically, so vertical bars naturally represent this orientation

• Makes visual comparison intuitive - taller bar = taller building
• Matches our real-world perception of height measurement
• The representation is more realistic and easier to understand at a glance

14.

Situations requiring data collection:

Situation 1: A school deciding which sports facilities to improve
• Need to collect data on which sports are most popular among students

Situation 2: A shopkeeper deciding which products to stock more
• Need to collect sales data to know customer preferences
(Other valid examples: planning bus routes, choosing menu items, etc.)

SECTION C - Answers to Short Answer Questions

15.

(a) Frequency Table:

Marks	Tally Marks	Frequency
6	||||	4
7	|||| ||||	9
8	|||| ||||	8
9	||||	4
10	|	1

(b) Mark obtained by maximum students: 7 (frequency = 9)

(c) Students scoring more than 7: 8 + 4 + 1 = 13 students

16.

Comparison of Pictographs and Bar Graphs:

Pictographs:
• Use symbols/pictures
• More visually attractive
• Better for small, simple data
• Good for younger audiences

Bar Graphs:
• Use rectangular bars
• More precise
• Better for large values
• Professional appearance

When to prefer Pictograph:
• Making a poster for primary students showing favorite fruits
• Data values are small and symbols are relevant

When to prefer Bar Graph:
• Presenting sales data worth lakhs of rupees
• Scientific or business presentations requiring precision

17.

Process for shopkeeper to find best-selling product:

Step 1 - Data Collection:
• Record number of each product sold daily for a specific period (e.g., one week)
• Keep accurate count using tally marks or register

Step 2 - Organization:
• Create a frequency table showing each product and total quantity sold
• Use tally marks for easy counting

Step 3 - Representation:
• Draw a bar graph for visual comparison
• Choose appropriate scale

Step 4 - Analysis and Conclusion:
• Identify product with highest frequency (tallest bar)
• This is the most popular product
• Stock more of this product in future

SECTION D - Answer to Long Answer Question

18.

(a) Frequency Distribution Table:

Hours	Tally Marks	Frequency
8	|||| ||||	9
10	|||| ||||	9
12	|||| |||	8
14	||	2

(b) Pictograph (🕐 = 2 students):

Hours	Number of Students
8 hours	🕐🕐🕐🕐 (plus half symbol)
10 hours	🕐🕐🕐🕐 (plus half symbol)
12 hours	🕐🕐🕐🕐
14 hours	🕐

(c) Conclusion about study habits:
• Most students (9 each) spend either 8 or 10 hours per week on homework
• This is moderate and consistent across the class
• Very few students (only 2) spend 14 hours, indicating most maintain balanced study schedules
• The data shows relatively uniform study patterns among students

SECTION E - Answers to Case Study Based Questions

19.

(a) Most sold: Samosa (120 pieces)
Least sold: Cold drink (65 bottles)

(b) Difference = 120 - 70 = 50 more samosas than burgers

(c) Height of bar for sandwiches:
• Scale: 1 unit = 10 items
• Sandwiches: 85 pieces
• Height = 85 ÷ 10 = 8.5 units

(d) Conclusions for planning:
• Stock more samosas as they are most popular
• Consider reducing cold drink stock or finding why sales are low
• Sandwiches and juice have similar demand, maintain good stock
• May consider introducing varieties of samosas to increase sales further

20.

(a) Growth in Week 4:
• Height at start of Week 4: 11 cm
• Height at end of Week 4: 15 cm
• Growth = 15 - 11 = 4 cm

(b) Maximum growth was in Week 6:
• Week 6 growth = 24 - 19 = 5 cm (highest)

(c) Total growth over 6 weeks:
• Initial height: 5 cm
• Final height: 24 cm
• Total growth = 24 - 5 = 19 cm

(d) Importance of organized data in experiments:
• Allows tracking of changes over time systematically
• Makes it easy to identify patterns and trends in growth
• Enables comparison between different weeks
• Provides clear evidence for drawing scientific conclusions
• Makes the experiment replicable and verifiable by others
