CLASS VIII – MATHEMATICS

Chapter Test: Tales by Dots and Lines

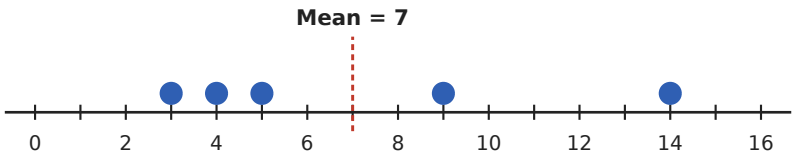
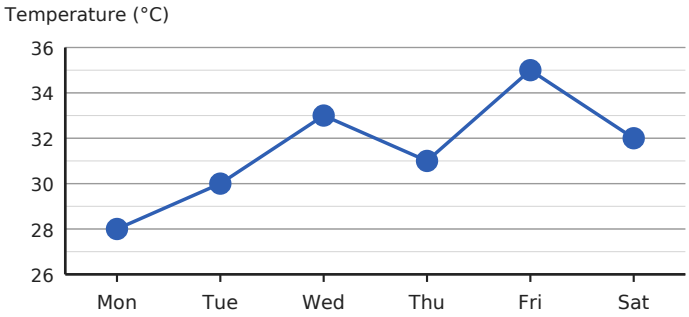
(Ganita Prakash, Grade 8, Part II – Chapter 5)

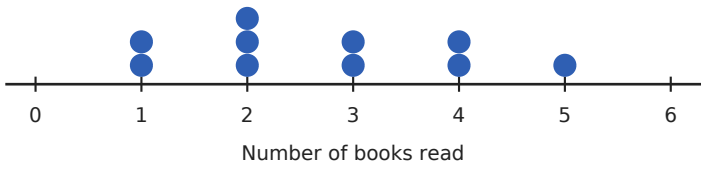
Time: 1½ Hours **M. M.: 40**

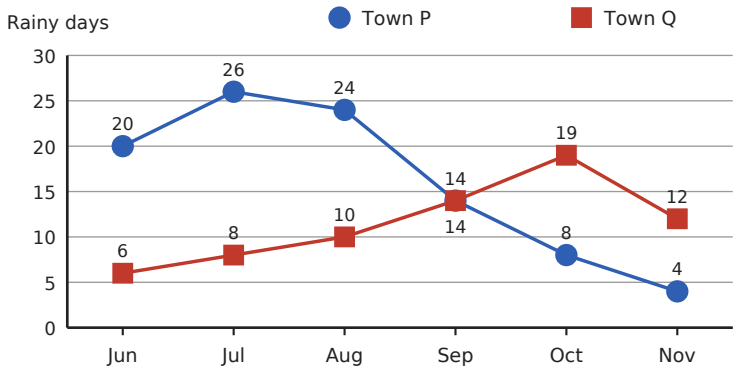
General Instructions:

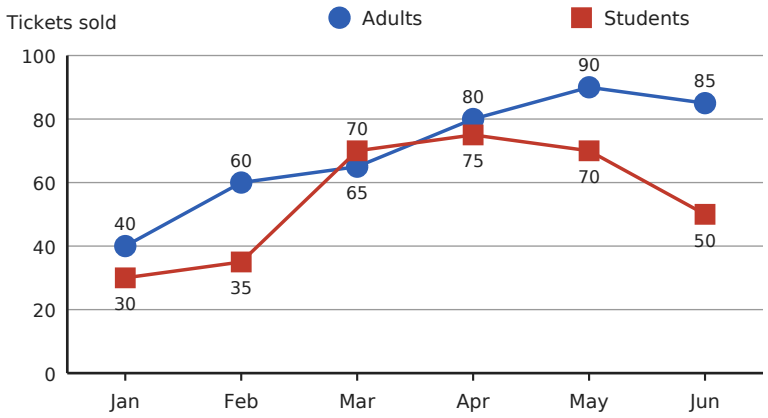
1. This paper contains 20 questions. All questions are compulsory.
2. This paper is divided into 4 sections: **A, B, C** and **D**.
3. In **Section A**, Questions no. 1 to 10 are Multiple Choice Questions carrying 1 mark each.
4. In **Section B**, Questions no. 11 to 13 are Very Short Answer type questions carrying 2 marks each.
5. In **Section C**, Questions no. 14 to 17 are Short Answer type questions carrying 3 marks each.
6. In **Section D**, Questions no. 18 to 20 are Long Answer / Case-based questions carrying 4 marks each.
7. There is no overall choice. However, an internal choice has been provided in 1 question of Section B, 3 questions of Section C and 2 questions of Section D.
8. Figures are only for reference and are not drawn to scale. Questions 9, 10, 11, 14 and 18 are figure-based.
9. Show all the steps of your working.
10. Use of calculator is **not** allowed.

Q. No.	Section – A	Marks
1	The mean of 8 numbers is 14.5. The sum of the 8 numbers is (A) 102 (B) 116 (C) 112 (D) 22.5	**[1]**
2	Every value of a data set is increased by 7. If the original mean was 12.4, the new mean is (A) 12.4 (B) 86.8 (C) 19.4 (D) 5.4	**[1]**
3	Every value of a data set is doubled. The median of the new data is _____ the original median. (A) double (B) equal to (C) half of (D) 2 more than	**[1]**
4	In a spreadsheet, the cell in column D and row 7 is named (A) 7D (B) D7 (C) D–7 (D) DD7	**[1]**
5	Which formula gives the average of the numbers in cells B2 to B9 of a spreadsheet? (A) =AVERAGE(B2:B9) (B) =SUM(B2:B9) (C) =AVERAGE(B2,B9) (D) =SUM(B2,B9)	**[1]**
6	A value smaller than the mean is included in a data set. The new mean will (A) increase (B) remain the same (C) decrease (D) become equal to the median	**[1]**
7	The median of 3, 5, 8, 11, 14 is 8. If a new value 20 is included, the new median is (A) 8 (B) 9.5 (C) 11 (D) 10	**[1]**
8	A line graph is most suitable for showing (A) the parts of a whole (B) the frequency of one value (C) comparison of unrelated items (D) change of a quantity over time	**[1]**

Q. No.	Section – A	Marks
9	Fig. 1 shows a dot plot of 5 values. Their mean is 7 (shown by the dashed line). The sum of the distances of the values lying to the left of the mean from the mean is  Fig. 1: Dot plot of five values (A) 7 (B) 5 (C) 14 (D) 9	**[1]**
10	Fig. 2 shows the maximum temperature of a town from Monday to Saturday. The greatest rise in temperature between two consecutive days is  Fig. 2: Maximum temperature of a town in six days (A) 2 °C (B) 3 °C (C) 4 °C (D) 7 °C	**[1]**

Q. No.	Section – B	Marks
11	Fig. 3 shows a dot plot of the number of books read by 10 students in a month.  Fig. 3: Books read by 10 students in a month (i) Find the mean number of books read. [1] (ii) Find the median number of books read. [1]	**[2]**
12	(A) The mean of 6 numbers is 20. A new number 41 is included. Find the new mean. **OR** (B) The mean of 5 numbers is 18. One of the numbers, 30, is removed. Find the mean of the remaining numbers.	**[2]**
13	The mean weight of 12 players of a team was calculated as 62.5 kg. Later, it was found that the weight of one player had been wrongly noted as 84 kg instead of 48 kg. Find the correct mean weight.	**[2]**

Q. No.	Section – C	Marks
14	Fig. 4 shows the number of rainy days in two towns, P and Q, from June to November.  Fig. 4: Number of rainy days in two towns (i) In which month do both towns have the same number of rainy days? How many days is it? [1] (ii) Find the mean number of rainy days per month for Town P. [1] (iii) For Town Q, between which two consecutive months is the rise in the number of rainy days the greatest? Find the rise. [1]	**[3]**
15	(A) Find the mean of 4, 8, 10, 14, 24. Show that the sum of the distances of the values to the left of the mean is equal to the sum of the distances of the values to the right of the mean. **OR** (B) Find the mean of 7, 9, 10, 18, 26. Show that the sum of the distances of the values to the left of the mean is equal to the sum of the distances of the values to the right of the mean.	**[3]**
16	(A) The mean of 10 numbers is 24. When a new number is included, the mean becomes 25. Find the new number. **OR** (B) The mean of 12 numbers is 40. When one number is removed, the mean of the remaining numbers becomes 38. Find the number that was removed.	**[3]**
17	(A) A teacher stores the marks of 8 students in a spreadsheet. Column A has the names, and columns B, C and D have the marks in Maths, Science and English. The data is in rows 2 to 9. (i) Write the cell that contains the Science marks of the student in row 5. [1] (ii) Write the formula to find the total marks of the student in row 3. [1] (iii) Write the formula to find the class average in English. [1] **OR** (B) The data 5, 8, 11, 14, 17 has mean 11. Two new values are included in the data. One of them is 7. Find the other value so that the mean remains 11.	**[3]**

Q. No.	Section – D	Marks
18	(A) Fig. 5 shows the number of tickets sold (in hundreds) to adults and to students at a museum in the first six months of a year.  Fig. 5: Museum tickets sold in six months (i) In which month was the total number of tickets sold the highest, and what was the total? [1] (ii) In which month were more student tickets sold than adult tickets? [1] (iii) Find the mean monthly number of adult tickets. [1] (iv) Find the mean monthly number of student tickets. Which group has the higher mean, and by how much? [1] **OR** (B) The mean of 5 numbers is 30. Four of the numbers are 18, 24, 28 and 40, and the fifth is x. (i) Find the value of x. [2] (ii) Verify that the median of the five numbers is 28. [1] (iii) A new value 30 is included. Find the new mean. [1]	**[4]**
19	(A) The table shows the number of books borrowed by 30 students from the library in a month. **Books borrowed** | **1** | **2** | **3** | **4** | **5** **No. of students** | **4** | **7** | **10** | **6** | **3** (i) Find the total number of books borrowed. [1] (ii) Find the mean number of books borrowed per student. [2] (iii) Find the median number of books borrowed. [1] **OR** (B) The data 12, 15, 18, 20, 25 has mean 18. (i) Without recalculating the data, find the mean if every value is increased by 6. [1] (ii) Find the mean if every value is multiplied by 3. [1] (iii) Find the mean if every value is first reduced by 2 and then multiplied by 5. [2]	**[4]**
20	**Case Study:** A cricket coach records the runs scored by a batter in 8 innings: 24, 36, 18, 52, 40, 30, 36, 44. (i) Find the mean score. [1] (ii) Find the median score. [1] (iii) In the 9th innings the batter scores 62. Find the new mean. Has the mean increased? Why? [1] (iv) How many runs must the batter score in the 10th innings so that the mean of all 10 innings is exactly 40? [1]	**[4]**

— End of Question Paper —