# Mathematics

**Class IX** **Worksheet – Statistics**

## Questions of 1 mark each

**Q.1.** The marks obtained by 17 students in a mathematics test (out of 100) are given below:
91, 82, 100, 100, 96, 65, 82, 76, 79, 90, 46, 64, 72, 68, 66, 48, 49.
The range of the data is:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A | 46 | B | 54 | C | 90 | D | 100 |

**Q.2.** The class mark of the class 90 – 110 is

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A | 90 | B | 20 | C | 100 | D | 110 |

**Q.3.** A charity surveys the people of a village for their haemoglobin counts. 25 out of 100 adult females in the village were tested. The result is given in this table.

| Haemoglobin (mg/dl) counts | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|
| No. of females | 3 | 3 | 2 | 5 | 1 | 1 | 3 | 4 | 2 | 1 |

A haemoglobin count below 12 is considered deficient. What proportion of females in the survey can be considered deficient? ***(Competency based question)***

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A | $\frac{3}{25}$ | B | $\frac{4}{25}$ | C | $\frac{18}{25}$ | D | $\frac{22}{25}$ |

**Q.4.** In the class intervals 70 – 80 and 80 - 90, the number 80 is included in:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A | 70 - 80 | B | 80 - 90 | C | both the intervals | D | None of these intervals |

**Q.5.** Two consecutive class marks of a distribution are 52 and 57, then the class size is

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A | 5 | B | 54.5 | C | 50 | D | 10 |

**Q.6.** The class marks of the frequency distribution are 10, 20, 30, 40, ….. The class representing the class mark 30 is

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A | 5 - 15 | B | 15 - 25 | C | 25 - 35 | D | 35 - 45 |

**Q.7.** Five friends Anchal, Amisha, Mahi, Vaishu and Sahar are living in a hostel. At the end of every month, they calculate the expenses on food and shopping. The table below shows their monthly expenses for the month of November. ***(Competency based question)***

| Name | Anchal | Amisha | Mahi | Vishnu | Sahar |
|---|---|---|---|---|---|
| Expenditure (in ₹) | 3000 | 5000 | 6000 | 4500 | 7000 |

Which graphical representation would best represent the given data?

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A | Histogram | B | Bar Graph | C | Frequency Polygon | D | Frequency polygon with histogram |

**Q.8.** To compare this year's result with last year's result, teacher went to the class and collected this year's number of distinctions from the students. For last year's number of distinctions, she opened the result register and wrote the required number of distinctions. The data collected by her from the students and register respectively are examples of ***(Competency based question)***

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A | Primary & Secondary data | B | Both Secondary data | C | Both Primary data | D | Secondary & Primary data |

**Q.9.** In a frequency distribution, the mid value 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 |

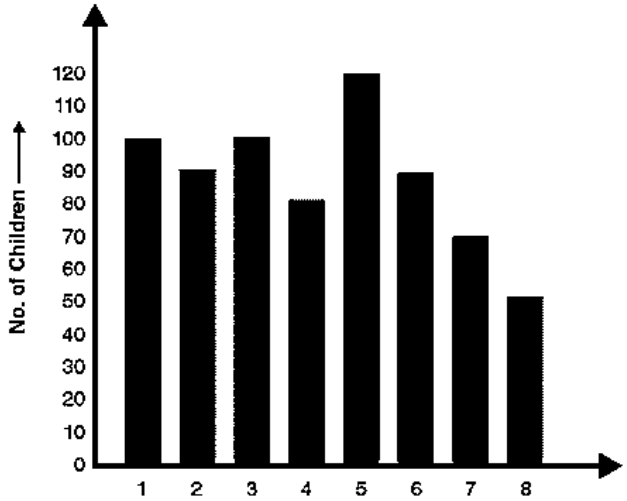
**Q.10.** **DIRECTION:**

In the given question, a Statement of Assertion (A) is followed by a Statement of Reason (R).

Choose the correct option.

***Statement A (Assertion)*:** The range of the first 6 multiples of 6 is 9.

***Statement R(Reason)*:** Range = Highest value – Lowest value.

| | |
|---|---|
| | (a)Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).<br>(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).<br>(c) Assertion (A) is true but reason (R) is false.<br>(d) Assertion (A) is false but reason (R) is true. |
| **Questions of 2 marks each** | |
| **Q.11.** | The bar graph below depicts the number of students in various classes at a school.<br>Read the bar graph and answer the following questions:<br>  <br><br>(i) Find the class having the maximum number of students.<br>(ii) Find the total number of students from classes 6 to 8. ***(Competency based question)*** |
| **Q.12.** | In a histogram, the areas of the rectangles are proportional to the frequencies. Can we say that the lengths of the rectangles are also proportional to the frequencies? Give reason. |
| **Q.13.** | The class marks of a distribution are 37, 42, 47, 52 and 57. Determine the class size and the class limits of the last class mark. |
| **Questions of 3 marks each** | |
| **Q.14.** | Heights (in cm) of 30 girls of Class IX are given below.<br>Prepare a grouped frequency distribution table for this data with class size 5.<br>140, 140, 160, 139, 153, 153, 146, 150, 148, 150, 152, 146, 154, 150, 160,<br>148, 150, 148, 140, 148, 153, 138, 152, 150, 148, 138, 152, 140, 146, 148. |

**Q.15.** Draw a histogram to represent the following grouped frequency distribution:

| Age (in years) | 20 - 24 | 25 - 29 | 30 - 34 | 35 - 39 | 40 - 44 | 45 - 49 |
|---|---|---|---|---|---|---|
| No. of teachers | 10 | 28 | 32 | 48 | 35 | 12 |

**Q.16.** Construct a frequency polygon for the following frequency distribution.

| Weight (in kg) | 40 - 45 | 45 - 50 | 50 - 55 | 55 - 60 | 60 - 65 | 65 - 70 |
|---|---|---|---|---|---|---|
| No. of people | 15 | 25 | 28 | 15 | 12 | 5 |

## Questions of 5 marks each

**Q.17.** The following table shows a frequency distribution for the speed of cars passing through a particular spot on a highway. Draw a histogram with frequency polygon representing the given data.

| Speed of car (km/h) | 30 - 40 | 40 - 50 | 50 - 60 | 60 - 70 | 70 - 80 | 80 - 90 | 90 - 100 |
|---|---|---|---|---|---|---|---|
| Frequency | 3 | 6 | 25 | 40 | 50 | 28 | 14 |

**Q.18.** The following table shows the distribution of students of sections A and B of a class according to the marks obtained by them:

| Section A | | Section B | |
|---|---|---|---|
| Marks | Frequency | Marks | Frequency |
| 0 – 15 | 5 | 0 – 15 | 3 |
| 15 – 30 | 12 | 15 – 30 | 16 |
| 30 – 45 | 28 | 30 – 45 | 25 |
| 45 – 60 | 30 | 45 – 60 | 27 |
| 60 – 75 | 35 | 60 – 75 | 40 |
| 75 – 90 | 13 | 75 – 90 | 10 |

Represent the marks of the students of both the sections on the same graph by two frequency polygons.

**Q.19.** The marks obtained (out of 100) by a class of 80 students are given below:

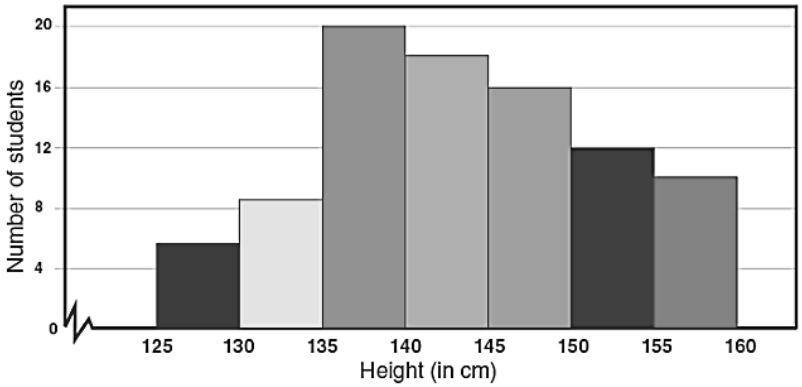
| Marks | 10 - 20 | 20 - 30 | 30 - 50 | 50 – 70 | 70 - 100 |
|---|---|---|---|---|---|
| No. of students | 6 | 17 | 15 | 18 | 24 |

Construct a histogram to represent the above data.

## Case study-based (4 marks)

**Q.20.** The following histogram shows the heights of students of a class:

Read the histogram and answer the following questions: ***(Competency based question)***




(i) What is the width of the class?

(ii) Which is the class interval having the highest frequency?

(iii) How many students have height less than 140 cm?

(iv) How many students have height 140 cm and more but less than 155 cm?

## ANSWERS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Q.1** | B | **Q.2** | C | **Q.3** | C | **Q.4** | B |
| **Q.5** | A | **Q.6** | C | **Q.7** | B | **Q.8** | A |
| **Q.9** | B | **Q.10** | d | **Q.11** | (i) Class 5 (ii) 210 | **Q.12** | No, it is true only when the class size is uniform |
| **Q.13** | 5, 54.5, 59.5 | **Q.20** | (i) 5 (ii) 135 – 140 (iii) 34 (iv) 56 | | | | |