

## Data Handling

## Multiple Choice Questions

1. What is the arithmetic mean of 1, 2, ..., 9 and 10?  
(a) 5.5 (b) 6  
(c) 7.5 (d) 10
2. In a data, 10 numbers are arranged in increasing order. If the 7th entry is increased by 4, by how much does the median increase?  
(a) Zero (b) 4  
(c) 6 (d) 5
3. What is the mean of  $x$ ,  $x+3$ ,  $x+6$ ,  $x+9$  and  $x+12$ ?  
(a)  $x+3$  (b)  $x+6$   
(c)  $x+9$  (d)  $x+12$
4. The daily sales of kerosene (in litres) in a ration shop for six days is given in the box.  

75, 120, 12, 50, 70.5, 140.5
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What is the average daily sale?  
(a) 150l (b) 10l  
(c) 142l (d) 78l
5. The mean of five numbers is 27. If one of the numbers is excluded, the mean gets reduced by 2. What is the excluded number?  
(a) 35 (b) 27  
(c) 25 (d) 40
6. What is the median of the data 46, 64, 87, 41, 58, 77, 35, 90, 55, 33, 92?  
(a) 87 (b) 77  
(c) 58 (d) 60.2
7. Which of the following is true about mean?  
(a) It occurs most frequently.  
(b) It divides observations into two equal parts.  
(c) It is representative of the whole group.  
(d) It is the sum of observations.
8. If each entry of a data is increased by 5, how does the mean change?  
(a) Remains the same. (b) Increases by 5.  
(c) Decreases by 5. (d) Becomes half.
9. The arithmetic mean of five given numbers is 85. What is their sum?  
(a) 425  
(b) 85  
(c) A number between 85 and 425.  
(d) A number greater than 500.
10. The average weight of a sample of 10 apples is 52 g. Later it was found that the weighing machine had shown the weight of each apple 10 g less. What is the correct average weight of an apple?  
(a) 62 g (b) 54 g  
(c) 56 g (d) 52 g
11. The mean of 6,  $y$ , 7,  $x$  and 14 is 8. Which of the following is true?  
(a)  $x+y=13$  (b)  $x-y=13$   
(c)  $2x+3y=13$  (d)  $x^2+y^2=15$

- 12.** Which of the following is correct about mode?
- (a) It is central.  
 (b) It occurs most frequently.  
 (c) It lies between the maximum and minimum observations.  
 (d) It is the average of the two middle terms.

- 13.** Rajani has a box with 6 marbles numbered from 1 to 6 on each of them. She picks a marble from it without seeing. What is the probability that the marble picked has the number 3 on it?

- (a)  $\frac{1}{6}$                       (b)  $\frac{2}{3}$   
 (c)  $\frac{3}{4}$                       (d)  $\frac{1}{4}$

(14-18): The heights of six mountains are 8200 m, 6000 m, 8600 m, 7500 m, 8800 m and 6500 m. Based on this information, answer the questions given.

- 14.** What is the approximate average height of the mountains?

- (a) 7657 m                      (b) 7600 m  
 (c) 7756 m                      (d) 7765 m

- 15.** Find the median height of the mountains.

- (a) 7850 m                      (b) 7580 m  
 (c) 8750 m                      (d) 5780 m

- 16.** What is the mode of the heights?

- (a) 6000                      (b) 8800  
 (c) Does not exist                      (d) 7500

- 17.** Which of the following statements is true?

- (a) The mean height of the mountains is greater than their median height.

- (b) The mean height of the mountains is less than their mode.

- (c) The median height of the mountains is less than their mode.

- (d) The median height of the mountains is greater than their mean height.

- 18.** Rakesh and Sanjay planned to go trekking on any of these mountains. They wrote the heights on bits of paper, shuffled them and picked one. What is the probability that the height picked is the maximum?

- (a)  $\frac{1}{3}$                       (b)  $\frac{2}{3}$   
 (c)  $\frac{1}{6}$                       (d)  $\frac{1}{4}$

(19-21): The ages (in years) of some teachers of a school are given in the box.

26, 32, 38, 41, 26, 31, 35, 33, 26, 37
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Based on this information, answer the following questions.

- 19.** What is the range of the ages of the teachers?

- (a) 15 years                      (b) 26 years  
 (c) 41 years                      (d) 32 years

- 20.** What is the mean age of the teachers?

- (a) 23.5 years                      (b) 32.5 years  
 (c) 35 years                      (d) 38 years

- 21.** What is the mode of the given data?

- (a) 32 years                      (b) 41 years  
 (c) 26 years                      (d) 31 years

**(22-25): The heights of 10 students, measured in cm are as follows:**

**143, 132, 150, 139, 128, 135, 151, 146, 141, 149**

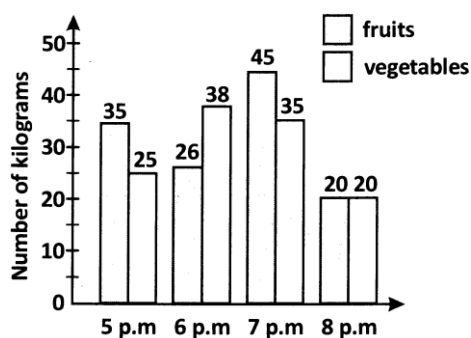
**Based on this information, answer the following questions.**

- 22.** What is the height of the shortest girl?  
 (a) 128 cm (b) 141 cm  
 (c) 151 cm (d) 150 cm
- 23.** What is the range of the data?  
 (a) 35 cm (b) 31 cm  
 (c) 23 cm (d) 28 cm
- 24.** What is the mean height of the students?  
 (a) 141.4 cm (b) 141 cm  
 (c) 142 cm (d) 151 cm
- 25.** The height of how many students is greater than the mean height?  
 (a) 4 (b) 3  
 (c) 5 (d) 2
- 26.** In which of these situations is a double bar graph useful?
- (i) Enrolment of students I class VII in 2009 and 2010.  
 (ii) Marks obtained in Term I and Term II examination.  
 (iii) Marks obtained in all subjects of a term examination.
- (a) (i) and (ii) (b) (ii) and (iii)  
 (c) (iii) and (i) (d) (i) only
- 27.** Which of these is certain to happen?  
 (a) You look younger today than yesterday.  
 (b) You look older today than yesterday.  
 (c) A tossed coin will land heads up.  
 (d) Tomorrow will be a cloudy day.

- 28.** Which of these is impossible to happen?  
 (a) A tossed coin lands with heads up.  
 (b) A tossed die lands up with 4 on top.  
 (c) The next traffic light is red.  
 (d) A die thrown lands up with 7 on top.
- 29.** Which of these can happen but not certainly?  
 (a) A tossed coin lands with heads up.  
 (b) The sun rises in the east.  
 (c) A die thrown lands with 8 on the top.  
 (d) The Earth revolves around the Sun.
- 30.** Which of these is impossible?  
 (a) The next traffic light seen is red.  
 (b) A tossed die lands up with 8 on top.  
 (c) A flipped coin lands up with head on top.  
 (d) It rains tommorow.
- 31.** Find the range of the data.
- 128,139,148,132,152,154,140,143,146,149,142
- (a) 9 (b) 26  
 (c) 5 (d) 24
- 32.** The table shows the number of hours Pavan studies on different days of a week.
- | Mon | Tue | Wed | Thurs | Fri | Sat |
|-----|-----|-----|-------|-----|-----|
| 3   | 4   | 2   | 5     | 4   | 3   |
- How many hours per day does he study on an average?  
 (a) 3.5 hours (b) 3 hours  
 (c) 4 hours (d) 4.5 hours

(33-35): The bar graph shows the sales of fruits and vegetables in a store in 4 hours on a certain evening.

Sales of fruits and vegetables in a store



**33.** How many kilograms of fruits were sold during the four hours?

- (a) 120 kg                      (b) 124 kg  
(c) 126 kg                      (d) 144 kg

**34.** When was the sale of fruits lesser than that of vegetables?

- (a) 7 p.m.                      (b) 6 p.m.  
(c) 8 p.m.                      (d) 5 p.m.

**35.** During the four hours, which of the following is true about the sale of fruits and vegetables?

- (a) The sale of vegetables was lesser than that of fruits.  
(b) The sale of vegetables is 126 kg.  
(c) The sale of fruits is 118 kg.  
(d) The sale of vegetables is greater than that of fruits.

**36.** The number of chapatis needed for 30 students of a class are given in the box.

2,1,2,3,3,2,2,2,4,4,3,2,3,3,2,2,2,2,3,3,2,3,2,2,2,3,3,3,3,4

Calculate the mode of the data.

- (a) 3                              (b) 2  
(c) 1                              (d) 4

**37.** Which of the following is true?

- (a) The mean of the first 5 natural numbers is the same as their median.  
(b) The mean of the first 5 natural numbers is the same as the mean of the first 5 whole numbers.  
(c) The median of the first 5 whole numbers is the same as the mean of the first 5 natural numbers.  
(d) The mode of first 5 natural numbers is 5.

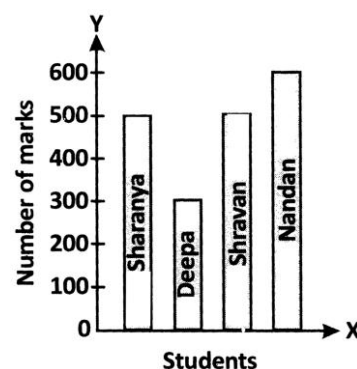
**38.** What is the arithmetic mean of first five prime numbers?

- (a) 6.2                              (b) 5.2  
(c) 6.2                              (d) 5.6

**39.** A comet passed by the Earth in the year 1835. It passes by the Earth every 60 years. Based on this information, in which of the following years can the comet be expected to pass by the Earth?

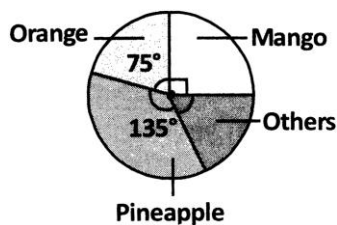
- (a) 2035                              (b) 2060  
(c) 2075                              (d) 2080

(4-6): The bargraph shows the marks obtained by four students in quarterly examination.



- 40.** Whose performamnce was the best?
- (a) Nandan                      (b) Shravan  
(c) Sharanya                  (d) Deepa
- 41.** Which two students secured equal marks?
- (a) Shravan and Deepa  
(b) Sharanya and Shravan  
(c) Deepa and Nandan  
(d) Sharanya and Deepa
- 42.** Whose performance was the worst?
- (a) Sharanya                  (b) Deepa  
(c) Shravan                    (d) Nandan

(7-8): The pie-chart depicts the results of a survey conducted to identify the favourite juice of some students.



- 43.** How many students like other juices if the total number of students is 360?
- (a) 70                          (b) 80  
(c) 65                          (d) 60
- 44.** How many students like orange juice, if the strength of the school is 720?
- (a) 150                        (b) 360  
(c) 180                        (d) 240

## Solutions

1. (A) By definition,

$$A.M. = \frac{1+2+3+\dots+10}{10} = 5.5$$

$$\text{By shortcut, } A.M. = \frac{10+1}{2} = 5.5$$

2. (A) For 10 observations, the median would be the average of the 5th and 6th observations. Since they are unaffected by increase in 7th entry, the median will be unchanged.

3. (B) By definition,

$$\text{Average} = \frac{x+(x+3)+(x+6)+(x+9)+(x+12)}{5}$$

$$= \frac{5x+30}{5} = x+6$$

4. (D) By definition of average, the average daily sale

$$= \left( \frac{75+120+12+50+70.5+140.5}{6} \right) l$$

$$= 78l$$

However, without calculating we can say that the answer is D since the average lies between the maximum and the minimum.

5. (A) Let the sum of four numbers be  $y$  and the excluded number be  $x$ .

$$\text{Then } \frac{y+x}{5} = 27 \text{ and } \frac{y}{4} = 25 \text{ or } x+y$$

$$= 135 \text{ and } y = 100$$

$$\Rightarrow x = 35$$

6. (C) Arranging the given data in ascending order, we have, 33, 35, 41, 46, 55, 58, 64, 77, 87, 90 and 92.

The sixth entry is 58.

$\therefore$  Median is 58.

7. (C) Mean is representative of whole group.

8. (B) Let the observations be  $x_1, x_2, \dots, x_n$ .

After the increase they are

$$x_1+5, x_2+5, \dots, x_n+5.$$

$$A.M. = \frac{x_1+5+x_2+5+\dots+x_n+5}{n}$$

$$= \text{A.M. before increase} + 5.$$

9. (A) Not available

10. (A) Not available

11. (A) Not available

12. (B) Not available

13. (A) Each of the 6 marbles has an equal chance of being picked. So, the probability that the marble picked is 3 will be 1 out of 6 i.e.  $\frac{1}{6}$ .

14. (B) Average height of the mountains

$$= \frac{8200+6000+8600+7500+8800+6500}{6} m$$

$$= \frac{45600}{6} m = 7600m$$

15. (A) Arranging the heights in ascending order, we have 6000, 6500, 7500, 8200, 8600, 8800.

$$\therefore \text{Median height} = \frac{7500+8200}{2}$$

$$= 7850 m$$

16. (C) Not available

17. (D) Not available

18. (C) Not available

19. (A) Not available

20. (B) Mean =  $\frac{\text{sum of observation}}{\text{number of observations}}$

$$= \frac{325}{10} = 32.5 \text{ years.}$$

21. (C) Mode of a given data is the value that occurs most frequently. So, mode = 26 years.

22. (A) The height of the shortest girl is 128 cm.

23. (C) The range of the data = maximum value - minimum value  
 $= (151-128)cm = 23cm$

- 24.** (A) Mean height =  $\frac{\text{Sum of the heights}}{\text{No. of students}}$   
 $= \frac{1414}{10} = 141.4 \text{ cm}$
- 25.** (C) Mean height of the students is 141.4 cm.  
 No. of students whose height is greater than 141.4 cm is 5.
- 26.** (A) Double bar graphs help to compare two sets of data at a glance.
- 27.** (B) Our age increases day by day.
- 28.** (D) A die has 6 faces numbered from 1 to 6. So, it will not land up with 7 on top.
- 29.** (A) A tossed coin may land with heads or tails up.
- 30.** (B) The 6 faces of a die are numbered as 1 to 6.
- 31.** (B) The range of a given data is the difference between its highest and lowest values.  
 From the given data, range =  $154 - 128 = 26$ .
- 32.** (A) Average =  $\frac{3+4+2+5+4+3}{6}$   
 $= \frac{21}{6} = 3.5 \text{ hours}$
- 33.** (C) No. of kilograms of fruits sold during the four hours  
 $= 35 + 26 + 45 + 20 = 126$ .
- 34.** (B) Not available
- 35.** (A) Not available
- 36.** (B) Not available
- 37.** (A) Mean of first 5 natural numbers  
 $= \frac{1+2+3+4+5}{5} = \frac{15}{5} = 3$   
 Median of 1, 2, ③, 4, 5, = 3
- 38.** (D) The first five prime numbers are 2, 3, 5, 7 and 11.  
 $\therefore$  Their mean =  $\frac{2+3+5+7+11}{5}$   
 $= 5.6$

- 39.** (C) Since the comet passes by the Earth every 60 years, find the year from the options that is a multiple of 60 added to 1835.  
 $2075 = 1835 + 4 \times 60$   
 $\therefore$  The comet can be expected to pass by the Earth in the year 2075.
- 40.** (A) Not available
- 41.** (B) Not available
- 42.** (B) Not available
- 43.** (D) The angle representing students who like other juices is  
 $360^\circ - (90^\circ + 75^\circ + 135^\circ) = 60^\circ$   
 Total number of students = 360  
 $\therefore$  Required number of students  
 $= \frac{60^\circ}{360^\circ} \times 360 = 60$
- 44.** The strength of the school is 720.  
 So, the number of students who like orange juice is  $\frac{75^\circ}{360^\circ} \times 720 = 150$ .