

IX Test-13 (MCQs - STATISTICS)

- 1) Median of first 49 natural numbers is :
(a) 24 (b) 25 (c) 23 (d) 26
- 2) Class mark of a particular class is 6.5 and class size is 3. The class interval is
(a) 4-7 (b) 6-9 (c) 5-8 (d) 6.5-9.5
- 3) Which of the following is not a measure of central tendency?
(a) mean (b) mode (c) median (d) range.
- 4) The mean of n observations is \bar{x} . If the first item is increased by 1, second by 2, third by 3 and so on, then the new mean is:
(a) $\bar{x} + \frac{n}{2}$ (b) $\bar{x} - \frac{n}{2}$ (c) $\bar{x} + \frac{n+1}{2}$ (d) $\bar{x} - \frac{n+1}{2}$
- 5) The mode of 4, 6, 7, 6, 4, 4, 2, 4, 8, 6, 4, 3, 4, 6 is
(a) 2 (b) 3 (c) 4 (d) 6
- 6) In a bar graph 0.25cm length of a bar represents 50 people, then the length of bar which represents 1000 people is
(a) 5cm (b) 4cm (c) 3cm (d) 2.5cm
- 7) The mean of 200 items was 50. Later on it was discovered that the two items were misread as 82 and 8 instead of 182 and 28. The correct mean is :
(a) 50 (b) 52 (c) 50.6 (d) 51.6
- 8) Median of the following numbers 17, 12, 15, 16, 18, 11, 12, 13 is
(a) 11 (b) 12 (c) 13 (d) 14
- 9) If the mean of the observation: $x, x+3, x+5, x+7, x+10$ is 9, then the value of x is :
(a) 4 (b) 5 (c) 6 (d) 10
- 10) The mean of 15 observations is 19. If the mean of first 8 observations is 18 and the last 8 observations is 20, then the 8th observation will be :
(a) 12 (b) 18 (c) 19 (d) 20
- 11) Let m be the mid-point and l be the upper class in a continuous frequency distribution. The lower class limit of the class is
(a) $2m+l$ (b) $2m-l$ (c) $m-l$ (d) $m-2l$

- 12) Let \bar{x} be the mean of x_1, x_2, \dots, x_n and \bar{y} be the mean of y_1, y_2, \dots, y_n . If \bar{z} is the mean of $x_1, x_2, \dots, x_n, y_1, y_2, \dots, y_n$ then \bar{z} is equal to
 (a) $\bar{x} + \bar{y}$ (b) $\frac{\bar{x} + \bar{y}}{2}$ (c) $\frac{\bar{x} + \bar{y}}{n}$ (d) $\frac{\bar{x} + \bar{y}}{2n}$
- 13) The mean of six numbers is 14. If one of the numbers is excluded, their mean becomes 13. The excluded number will be (a) 9 (b) 12 (c) 19 (d) 27.
- 14) The class-mark of a class is 7 and class size is 5, then the class interval is
 (a) 4-10 (b) 4.5-9.5 (c) 5-10 (d) 7-12
- 15) Class size of a distribution having 28, 34, 40, 46 and 52 as its class marks is:
 (a) 4 (b) 5 (c) 6 (d) 8
- 16) The mean of factors of 24 is (a) $\frac{57}{7}$ (b) $\frac{15}{2}$ (c) $\frac{25}{2}$ (d) 5
- 17) If each observation of a data set is increased by 5, then their mean:
 (a) remains same (b) becomes 5 times
 (c) increases by 5 (d) insufficient information.
- 18) Consider the class intervals 10-20 and 20-30. The number 20 will be included in the class interval:
 (a) 10-20 (b) 20-30 (c) both 10-20 & 20-30 (d) none of these
- 19) If the mean of 10, 12, 18, p , 29, 17 is 15, the value of p is
 (a) 13 (b) 4 (c) 15 (d) 14.5
- 20) The class mark for the class interval 40-60 is
 (a) 40 (b) 60 (c) 50 (d) insufficient data

IX Test-13 (MCQs - Statistics)

1)

$n = 49$, odd

$$\text{median} = \left(\frac{n+1}{2}\right)^{\text{th}} \text{ observation} = \left(\frac{49+1}{2}\right)^{\text{th}} \text{ observation}$$

$$= 25^{\text{th}} \text{ observation} = 25 \text{ (b)}$$

2)

$$\text{lower limit} = \text{classmark} - \frac{\text{classsize}}{2}$$

$$= 6.5 - \frac{3}{2} = 6.5 - 1.5 = \underline{\underline{5}}$$

$$\text{upper limit} = \text{classmark} + \frac{\text{classsize}}{2}$$

$$= 6.5 + \frac{3}{2} = 6.5 + 1.5 = \underline{\underline{8}}$$

5-8 (c)

3)

range (d)

4)

$$\frac{x_1 + x_2 + \dots + x_n}{n} = \bar{x}$$

$$x_1 + x_2 + \dots + x_n = n\bar{x}$$

$$\text{Then, } (x_1+1) + (x_2+2) + (x_3+3) + \dots + (x_n+n)$$

$$= (x_1 + x_2 + x_3 + \dots + x_n) + (1+2+3+\dots+n)$$

$$= n\bar{x} + \frac{n(n+1)}{2}$$

$$= n \left(\bar{x} + \frac{n+1}{2} \right)$$

$$\therefore \text{new mean} = \frac{n \left(\bar{x} + \frac{n+1}{2} \right)}{n} = \bar{x} + \frac{n+1}{2} \text{ (c)}$$

5)

4 (c)

6)

$$0.25 : 50 :: x : 1000$$

[let x be the length of bar representing 1000 people]

$$50 \times x = 0.25 \times 1000$$

$$x = \frac{0.25 \times 1000}{50} = 5 \text{ cm (a)}$$

7)

$$\bar{x} = \frac{x_1 + x_2 + \dots + x_{200}}{200} = 50$$

$$\Rightarrow x_1 + x_2 + \dots + x_{200} = 10000$$

$$\text{New Sum} = 10000 + 182 + 28 - 82 - 8$$

$$= 10120$$

$$\therefore \text{The correct mean} = \frac{10120}{200} = 50.6 \text{ (c)}$$

8) On arranging in ascending order,

11, 12, 12, 13, 15, 16, 17, 18

$n = 8$, even

$$\text{median} = \frac{1}{2} \left[\left(\frac{n}{2} \right)^{\text{th}} + \left(\frac{n}{2} + 1 \right)^{\text{th}} \text{ observation} \right]$$

$$= \frac{1}{2} \left[4^{\text{th}} + 5^{\text{th}} \text{ observation} \right]$$

$$= \frac{1}{2} (13 + 15) = \frac{28}{2} = \underline{\underline{14}} \text{ (d)}$$

9) $\bar{x} = \frac{x + x + 3 + x + 5 + x + 7 + x + 10}{5} = 9$

$$\Rightarrow 5x + 25 = 45$$

$$\Rightarrow 5x = 20$$

$$\therefore x = 4 \text{ (a)}$$

10) Mean of 15 observations is 19

$$\therefore \text{Sum of 15 observations} = 19 \times 15 = 285$$

Mean of first 8 observations = 18

$$\therefore \text{Sum of first 8 observations} = 18 \times 8 = 144$$

Mean of last 8 observations = 20

$$\therefore \text{Sum of last 8 observations} = 20 \times 8 = 160$$

$$\therefore \text{The 8}^{\text{th}} \text{ observation} = 144 + 160 - 285$$

$$= 304 - 285 = 19 \text{ (c)}$$

11) Class mark = $\frac{\text{lower limit} + \text{upper limit}}{2}$

$$\Rightarrow m = \frac{\text{lower limit} + l}{2}$$

$$\Rightarrow 2m = \text{lower limit} + l$$

$$\therefore \text{lower limit} = 2m - l \text{ (b)}$$

12) Combined mean = $\frac{n_1 \bar{x}_1 + n_2 \bar{x}_2}{n_1 + n_2} = \frac{n \bar{x} + n \bar{y}}{n + n}$

$$= \frac{n(\bar{x} + \bar{y})}{2n} = \frac{\bar{x} + \bar{y}}{2} \text{ (b)}$$

- 13) mean of six numbers = 14
 \therefore Sum of six numbers = $14 \times 6 = 84$
 mean of 5 numbers = 13
 \therefore Sum of 5 numbers = $13 \times 5 = 65$
 \therefore The excluded number = $84 - 65 = 19$ (c)

14) lower limit = $\frac{\text{classmark} - \text{classsize}}{2}$
 $= \frac{7 - 5}{2} = 7 - 2.5 = 4.5$

upper limit = $\frac{\text{classmark} + \text{classsize}}{2}$
 $= \frac{7 + 5}{2} = 7 + 2.5 = 9.5$

\therefore Class interval is $4.5 - 9.5$ (b)

15) class size = $34 - 28 = 6$ (c)

16) Factors of 24 are 1, 2, 3, 4, 6, 8, 12 and 24

mean = $\frac{1+2+3+4+6+8+12+24}{8} = \frac{60}{8} = \frac{15}{2}$ (b)

17) mean also increased by 5 (c)

18) 20 - 30 (b)

19) $\bar{x} = \frac{10+12+18+p+29+17}{6} = 15$

$86 + p = 90$

$\therefore p = 90 - 86 = 4$ (b)

20) class mark = $\frac{\text{lower limit} + \text{upper limit}}{2}$
 $= \frac{40 + 60}{2} = \frac{100}{2} = 50$ (c)