DPP
DAILY PRACTICE PROBLEMS

Class : XIth	Subject : MATHS
Date :	DPP No. : 7

Topic :- STATISTICS

1. The standard deviation of the data:

x: 1 a a^2 $\cdots$ a^n

f: $^nC_0$ $^nC_1$ $^nC_2$ $\cdots$ ^nC_n

is

    a) $\left(\frac{1+a^2}{2}\right)^n - \left(\frac{1+a}{2}\right)^n$

    b) $\left(\frac{1+a^2}{2}\right)^{2n} - \left(\frac{1+a}{2}\right)^n$

    c) $\left(\frac{1+a}{2}\right)^{2n} - \left(\frac{1+a^2}{2}\right)^n$

    d) None of these

2. If $\text{var}(x) = 8.25$, $\text{var}(y) = 33.96$ and $\text{cov}(x,y) = 10.2$ then the correlation coefficient is

    a) 0.89   b) -0.98   c) 0.61   d) -0.16

3. If the difference between the mode and median is 2, then the difference between the median and mean is (in the given order)

    a) 2   b) 4   c) 1   d) 0

4. If the lines of regression are $3x + 12y = 19$ and $3y + 9x = 46$, then r_{xy} will be

    a) 0.289   b) -0.289   c) 0.209   d) None of these

5. If $\sum x = 15$, $\sum y = 36$, $\sum xy = 110$, $n = 5$, then $\text{cov}(x,y)$ equals

    a) 1/5   b) -1/5   c) 2/5   d) -2/5

6. A statistical measure which cannot be determined graphically is

    a) Median   b) Mode   c) Harmonic mean   d) Mean

7. The mean of n observations is $\bar{x}$. If one observation x_{n+1} is added, then the mean remains same. The value of x_{n+1} is

    a) 0   b) 1   c) n d) $\bar{x}$

8. Let $x_1, x_2, x_3, ..., x_n$ be n observations with mean m and standard deviation s. Then the standard deviation of the observations $ax_1, ax_2, ax_3, ..., ax_n$, is

    a) $a + x$ b) s/a c) $|a|\ s$ d) as

9. The positional average of central tendency is

    a) GM   b) HM   c) AM   d) Median

10. The mean of a set of observations is $\bar{x}$. If each observation is divided by, $\alpha \neq 0$ and then is increased by 10, then the mean of the new set is

    a) $\frac{\bar{x}}{\alpha}$ b) $\frac{\bar{x}+10}{\alpha}$ c) $\frac{\bar{x}+10\alpha}{\alpha}$ d) $\alpha\bar{x}+10$

11. The median of 19 observations of a group is 30. If two observations with values 8 and 32 are further included, then the median of the new group of 21 observations will be

    a) 28   b) 30   c) 32   d) 34

12. The variance of first n natural numbers is

   a) $\frac{n^2 + 1}{12}$ b) $\frac{n^2 - 1}{12}$ c) $\frac{(n + 1)(2n + 1)}{6}$ d) None of these

13. What is the standard deviation of the following series.

Measurements	0-10	10-20	20-30	30-40
Frequency	1	3	4	2

   a) 81 b) 7.6
   c) 9 d) 2.26

14. If a variable takes discrete values $x + 4, x - \frac{7}{2}, x - \frac{5}{2}, x - 3, x - 2, x + \frac{1}{2}, x - \frac{1}{2}, x + 5, (x > 0)$, then the median is

   a) $x - \frac{5}{4}$ b) $x - \frac{1}{2}$ c) $x - 2$ d) $x + \frac{5}{4}$

15. The weighted AM of first n natural numbers whose weights are equal to the corresponding numbers is equal to

   a) $2n + 1$ b) $\frac{1}{2}(2n + 1)$ c) $\frac{1}{3}(2n + 1)$ d) $\frac{2n + 1}{6}$

16. If each of n numbers $x_i = i$ is replaced by $(i + 1)x_i$, then the new mean is

   a) $\frac{(n + 1)(n + 2)}{n}$ b) $n + 1$ c) $\frac{(n + 1)(n + 2)}{3}$ d) None of these

17. The most stable measure of central tendency is

   a) The mean b) The median c) The mode d) None of these

18. If the median of the scores 1, 2,x,4, 5 (where $1 < 2 < x < 4 < 5$) is 3, then the mean of the scores is

   a) 2 b) 3 c) 4 d) 5

19. Mode of a certain series is x. If each score is decreased by 3, then mode of the new series is

   a) x b) $x - 3$ c) $x + 3$ d) $3x$

20. The coefficient of quartile deviation is calculated by the formula

   a) $\frac{Q_1 + Q_2}{4}$ b) $\frac{Q_3 + Q_1}{4}$ c) $\frac{Q_3 - Q_1}{Q_3 + Q_1}$ d) $\frac{Q_2 + Q_1}{Q_2 - Q_1}$