DPP
DAILY PRACTICE PROBLEMS

Class : XIth **Subject : MATHS**
Date : **DPP No. : 2**

Topic :- STATISTICS

1. The weighted mean of first n natural numbers whose weights are equal is given by
   a) $\frac{n+1}{2}$ b) $\frac{2n+1}{2}$ c) $\frac{2n+1}{3}$ d) $\frac{(2n+1)(n+1)}{6}$
2. The variance of the first n natural numbers is
   a) $\left(\frac{n^2-1}{12}\right)$ b) $\frac{n(n^2-1)}{12}$ c) $\left(\frac{n^2+1}{12}\right)$ d) $\frac{n(n^2+1)}{12}$
3. Following are the marks obtained by 9 students in Mathematics test:
   50,69,20,33,53,39,40,65,59
   The mean deviation from the median is
   a) 9 b) 10.5 c) 12.67 d) 14.76
4. If the median of $\frac{x}{2},\frac{x}{3},\frac{x}{4},\frac{x}{5},\frac{x}{6}$(where $x>0$) is 6, then $x=$
   a) 6 b) 18 c) 12 d) 24
5. Coefficient of skewness for the values
   Median $=18.8$, $Q_1=14.6$, $Q_3=25.2$ is
   a) 0.2 b) 0.5 c) 0.7 d) None of these
6. The arithmetic mean of the squares of first n natural numbers is
   a) $\frac{n+1}{6}$ b) $\frac{(n+1)(2n+1)}{6}$ c) $\frac{n^2-1}{6}$ d) None of these
7. If G_1,G_2 are the geometric means of two series of observations and G is the GM of the ratios of the corresponding observations then G is equal to
   a) $\frac{G_1}{G_2}$ b) $\log G_1-\log G_2$ c) $\frac{\log G_1}{\log G_2}$ d) $\log(G_1\cdot G_2)$
8. The coefficient of correlation (r) and the two regression coefficients b_{yx}, b_{xy} are related as
   a) $r=\frac{b_{xy}}{b_{yx}}$ b) $r=b_{xy}\times b_{yx}$
   c) $r=b_{xy}+b_{yx}$ d) $r=(\text{sign } b_{yx})\sqrt{b_{xy}\,b_{yx}}$
9. Let a,b,c,d,e be the observations with mean m and standard deviation σ. The standard deviation of the observations $a+k,b+k,c+k,d+k,e+k$, is
   a) σ b) $k\,\sigma$ c) $k+\sigma$ d) σ/k
10. If the S.D. of a variable X is σ, then the S.D. of $\frac{aX+b}{c}$(a,b,c are constant), is
    a) $\frac{a}{c}\sigma$ b) $\left|\frac{a}{c}\right|\sigma$ c) $\left|\frac{c}{a}\right|\sigma$ d) $\frac{c}{a}\sigma$
11. The mean of the series $x_1,x_2,\ldots,x_n$ is $\overline{X}$. If x_2 is replaced by λ, then the new mean is
    a) $\overline{X}-x_2+\lambda$ b) $\frac{\overline{X}-x_2-\lambda}{n}$ c) $\frac{(n-1)\overline{X}+\lambda}{n}$ d) $\frac{n\overline{X}-x_2+\lambda}{n}$
12. If σ is the standard deviation of a random variable x, then the standard deviation of the random variable $ax+b$, where $a,b\in R$ is

a) $a\sigma + b$ b) $|a|\sigma$ c) $|a|\sigma + b$ d) $a^2\sigma$

13. If the mean of a set of observations $x_1, x_2, \ldots x_{10}$ is 20, then the mean of $x_1 + 4, x_2 + 8, \ldots x_{10} + 40$ is

a) 34 b) 38 c) 40 d) 42

14. Which one of the following is correct?

a) Quartile derivation is one half of the sum of the upper and lower quartiles

b) For finding median, the items of the series are arranged in ascending or descending order of magnitude

c) Mean, mode, median have not same unit

d) SD can be computed from any average

15. The mean deviation from mean of the observation $a, a + d, a + 2d, \ldots a + 2nd$ is

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

16. If the variance of 1, 2, 3, 4, 5, ..., 10 is $\frac{99}{12}$, then the standard derivation of 3, 6, 9, 12, ..., 30 is

a) $\frac{297}{4}$ b) $\frac{3}{2}\sqrt{33}$ c) $\frac{3}{2}\sqrt{99}$ d) $\sqrt{\frac{99}{12}}$

17. Consider first 10 positive integers having standard deviation 2.87. If we multiply each number by -1 and then add 1 to each number, the standard deviation of the numbers so obtained is

a) 8.25 b) 2.87 c) -2.87 d) -8.25

18. If SD of X is s, then SD of the variable $\mu = \frac{aX + b}{c}$, where a, b, c are constants, is

a) $\left|\frac{c}{a}\right|\sigma$ b) $\left|\frac{a}{c}\right|\sigma$ c) $\left|\frac{b}{c}\right|\sigma$ d) $\left|\frac{c^2}{a^2}\right|\sigma$

19. The S.D. of the series a, $a + d, a + 2d, \ldots, a + 2nd$, is

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

20. In a moderately skewed distribution the values of mean and median are 5 and 6 respectively. The value of mode in such a situation is approximately equal to

a) 8 b) 11 c) 16 d) None of these