Statistics

1. Quartile deviation for a frequency distribution

(a) $Q = Q_3 - Q_1$ (b) $Q = \frac{1}{2}(Q_3 - Q_1)$ (c) $Q = \frac{1}{3}(Q_3 - Q_1)$ (d) $Q = \frac{1}{4}(Q_2 - Q_1)$

2. The variance of the first *n* natural numbers is

(a) $\frac{n^2-1}{12}$ (b) $\frac{n^2-1}{6}$ (c) $\frac{n^2+1}{6}$ (d) $\frac{n^2+1}{12}$

3. For a moderately skewed distribution, quartile deviation and the standard deviation are related by

(a) S.D. $= \frac{2}{3}$ Q.D. (b) S.D. $= \frac{3}{2}$ Q.D. (c) S.D. $= \frac{3}{4}$ Q.D. (d) S.D. $= \frac{4}{3}$ Q.D.

4. For a frequency distribution standard deviation is computed by applying the formula

(a) $\sigma = \sqrt{\left(\frac{\Sigma fd}{\Sigma f}\right) - \frac{\Sigma fd^2}{\Sigma f}}$ (b) $\sigma = \sqrt{\frac{\Sigma fd^2}{\Sigma f} - \left(\frac{\Sigma fd^2}{\Sigma f}\right)^2}$ (c) $\sigma = \sqrt{\left(\frac{\Sigma fd}{\Sigma f}\right)^2 - \frac{\Sigma fd^2}{\Sigma f}}$ (d) $\sigma = \sqrt{\frac{\Sigma fd^2}{\Sigma f} - \left(\frac{\Sigma fd}{\Sigma f}\right)^2}$

5. For a frequency distribution standard deviation is computed by

(a) $\sigma = \frac{\Sigma f(x-\bar{x})}{\Sigma f}$ (b) $\sigma = \frac{\sqrt{\Sigma f(x-\bar{x})^2}}{\Sigma f}$ (c) $\sigma = \sqrt{\frac{\Sigma f(x-\bar{x})^2}{\Sigma f}}$ (d) $\sigma = \sqrt{\frac{\Sigma f(x-\bar{x})}{\Sigma f}}$

6. If Q.D is 16, the most likely value of S.D. will be

(a) 24 (b) 42 (c) 10 (d) None of these

7. The statistical method which helps us to estimate or predict the unknown value of one variable from the known value of the related variable is called

(a) Correlation (b) Scatter diagram (c) Regression (d) Dispersion

8. The coefficient of correlation between two variables *x* and *y* is 0.8 while regression coefficient of *y* on *x* is 0.2. Then the regression coefficient of *x* on *y* is

(a) –3.2 (b) 3.2 (c) 4 (d) 0.16

9. If the lines of regression coincide, then the value of correlation coefficient is

(a) 0 (b) 1 (c) 0.5 (d) 0.33

10. Two lines of regression are $3x + 4y - 7 = 0$ and $4x + y - 5 = 0$. Then correlation coefficient between *x* and *y* is

(a) $\frac{\sqrt{3}}{4}$ (b) $-\frac{\sqrt{3}}{4}$ (c) $\frac{3}{16}$ (d) $-\frac{3}{16}$

11. If the two lines of regression are $4x + 3y + 7 = 0$ and $3x + 4y + 8 = 0$, then the means of *x* and *y* are

(a) $-\frac{4}{7}, -\frac{11}{7}$ (b) $-\frac{4}{7}, \frac{11}{7}$ (c) $\frac{4}{7}, -\frac{11}{7}$ (d) 4, 7

12. If *X* and *Y* are independent variable, then correlation coefficient is

(a) 1 (b) – 1 (c) $\frac{1}{2}$ (d) 0

13. The value of the correlation coefficient between two variable lies between

(a) 0 and 1 (b) – 1 and 1 (c) 0 and ∞ (d) $-\infty$ and 0

14. The coefficient of correlation between two variables *x* and *y* is given by

(a) $r = \frac{\sigma_x^2 + \sigma_y^2 + \sigma_{x-y}^2}{2\sigma_x\sigma_y}$ (b) $r = \frac{\sigma_x^2 + \sigma_y^2 - \sigma_{x-y}^2}{2\sigma_x\sigma_y}$ (c) $r = \frac{\sigma_x^2 + \sigma_y^2 + \sigma_{x-y}^2}{\sigma_x\sigma_y}$ (d) $r = \frac{\sigma_x^2 + \sigma_y^2 - \sigma_{x-y}^2}{\sigma_x\sigma_y}$

15. If *r* is the correlation coefficient between two variables, then

(a) $r \geq 1$ (b) $r \leq 1$ (c) $|r| \leq 1$ (d) $|r| \geq 1$