M COM ENTRANCE

BUSINESS STATISTICS PRACTICE QUESTIONS

CH3 : MEASURES OF DISPERSION

1. If the first and the third quartiles are 22.16 and 56.36 respectively, then the quartile deviation is:

   A 17.1

   B 34.2

   C 51.3

   D None of these

2. The relationship between mean deviation and quartile deviation is:

   A $\text{MD} = \frac{5}{6}\text{QD}$

   B $\text{MD} = \frac{6}{5}\text{QD}$

   C $\text{MD} = \frac{4}{5}\text{QD}$

   D $\text{MD} = \frac{5}{4}\text{QD}$

3. The quartile deviation of a data containing 10 observations is 5. If all the observations are increased by 7, the new quartile deviation is:

   A 12

   B 22

   C 7

   D 5

4. Which of the following measures is independent of the unit of the observations?

   A Mean Deviation

   B Coefficient of Variation

   C Variance

   D Inter-quartile range

5. In a symmetrical distribution, observations covered in the interval $\bar{x} \pm 3\sigma$ are:

   A 99.43%

   B 99.53%

   C 99.63%

   D 99.73%

6. If the third quartile is 142 and the semi-interquartile range is 18, the median of the distribution (assuming the distribution to be symmetrical) will be :

   A 106

   B 124

   C 150

   D 248

7. The measure of dispersion most affected by the two extreme observations of a series is:

   A Range

   B Mean Deviation

   C Standard Deviation

   D Quartile Deviation

8. In case of open ended classes, an appropriate measure of dispersion to be used is:

   A Range

   B Mean Deviation

   C Standard Deviation

   D Quartile Deviation

9. If each and every value of a data set is multiplied by a constant, the variance of the resultant data set:

   A remains unchanged

   B increases proportionately

   C decreases proportionately

   D none of these

10. The standard deviation of a set of 50 observations is 6.5. If each observation is multiplied by 2, the standard deviation of the resulting observations is:

    A 6.5

B 100

C 13

D 25

11. For a symmetric distribution

A QD = MD

B QD > MD

C QD < MD

D none of these

12 If $y = 4x - 5$ and mean and standard deviation of x are 40 and 2.5 then the mean and standard deviation of y are:

A 155, 2.5

B 160, 5

C 155, 10

D 160, 10

13. Graphically dispersion can be studied with the help of:

A Histogram

B Cumulative Frequency Curves

C Frequency Curves

D Lorenz Curves

14. The mean deviation of the scores 12, 15, 18 is:

A 6

B 0

C 3

D 2

15. If the dispersion is small, the standard deviation is:

A Large

B Zero

C Small

D Negative

16. The variance is zero only if all observations are:
    - **A** Different
    - **B** Negative
    - **C** Less than mean
    - **D** Same

17. Suppose data are normally distributed with a mean of 100 and a standard deviation of 10. Between what two values will approximately 95% of the data fall?
    - **A** 90 and 110
    - **B** 80 and 120
    - **C** 70 and 130
    - **D** cannot be determined

18. Which of the following statements is correct?
    - **A** The standard deviation of a constant is equal to unity
    - **B** The sum of absolute deviations is minimum if these deviations are taken from the mean.
    - **C** Quartile deviation is affected by change of origin
    - **D** The variance is positive quantity and is expressed in square of the units of the observations

19. The variance of 19, 21, 23, 25 and 27 is 8. The variance of 14, 16, 18, 20 and 22 is:
    - **A** Greater than 8
    - **B** 8
    - **C** Less than 8
    - **D** $8 - 5 = 3$

20. The average of squared deviations from mean is called:
    - **A** Mean deviation
    - **B** Variance
    - **C** Standard deviation
    - **D** Coefficient of variation

21. Which of the following is measure of dispersion is independent of the unit of measurement?
    - **A** Inter-quartile range
    - **B** Semi-interquartile range

C Quartile deviation

D Coefficient of quartile deviation

22. Which two of the following statements are true?

a) The sum of deviations from mean (ignoring algebraic signs) is greater than the sum of the deviations from median (ignoring algebraic signs).

b) Standard deviation is independent of change of origin and change of scale.

c) In a symmetrical distribution, mean deviation equals 4/5 of standard deviation

d) In a symmetrical and bell shaped distribution, quartile deviation is 1/3 of standard deviation

Choose the answer from the options given below:

A b) and d)

B a) and c)

C c) and d)

D a) and b)

23. Lorenz curve was first used to measure:

A distribution of profits and turnover

B distribution of population

C distribution of health and income

D distribution of wealth

24. Lorenz curve

A always coincides with the line of equal distribution

B runs parallel to the line of equal distribution

C never crosses the line of equal distribution

D All of them are correct

25. Standard deviation is least affected by

A extreme observations

B sampling fluctuations

C Both **A** and **B**

D Neither **A** nor **B**