SCQ : (3, –1)

SINGLE CORRECT QUESTION (SCQ)

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

(1) $\alpha - \dfrac{5}{4}$ (2) $\alpha - \dfrac{1}{2}$ (3) $\alpha - 2$ (4) $\alpha + \dfrac{5}{4}$

2. Find the mode of data 1, 2, 5, 3, 2, 3, 0, 5, 2.

(1) 3   (2) 1   (3) 5   (4) 2

3. Coefficient of range 5, 2, 3, 4, 6, 8, 10 is

(1) $\dfrac{2}{3}$ (2) $\dfrac{1}{3}$ (3) $\dfrac{3}{5}$ (4) $\dfrac{1}{2}$

4. The mean at 21 observations (all different) is 40. If each observations greater than the median are increased 21, then mean of observations will become

(1) 50   (2) 50.5   (3) 30   (4) 45

5. The mean of series x_1, x_2, x_3, ... x_n is $\bar{x}$, then mean of the series $x_i + 2i$, $i = 1, 2, 3, \ldots , n$ will be

(1) $\bar{x} + n$ (2) $\bar{x} + n + 1$ (3) $\bar{x} + 2$ (4) $\bar{x} + 2n$

6. If the difference between mean and mode is 63, the difference between mean and median is

(1) 189   (2) 21   (3) 31.5   (4) 48.5

7. **STATEMENT-1 :** If $\displaystyle\sum_{i=1}^{9}(x_i - 8) = 9$ and $\displaystyle\sum_{i=1}^{9}(x_i - 8)^2 = 45$ then S.D. of x_1, x_2,......, x_9 is 2.

STATEMENT-2 : S.D. is independent of change of origin.
(1) STATEMENT-1 is true, STATEMENT-2 is true
(2) STATEMENT-1 is true, STATEMENT-2 is false
(3) STATEMENT-1 is false, STATEMENT-2 is true
(4) STATEMENT-1 is false , STATEMENT-2 is false

8. The mean of distribution is 4 if coefficient of variation is 58%. Then standard deviation of distribution is

(1) 2.23   (2) 3.23   (3) 2.32   (4) 2.75

9. The sum of squares of deviations for 10 observations taken from mean 50 is 250. The co-efficient of variation is

(1) 50%   (2) 10%   (3) 40%   (4) 30%

10. Following is the record of goals scored by team A in football session

Numbers of goals scored	0	1	2	3	4
Numbers of match is	1	9	7	5	3

for team 'B' mean number of goals scored per match was 2 goals with standard deviation 1.25 . The team which is more consistant

(1) A   (2) B
(3) A and B both are same   (4) neither A nor B

11. The mean of two samples of sizes 200 and 300 were found to be 25, 10 respectively. Their standard deviations were 3 and 4 respectively. Find the variance of combined sample of size 500

(1) 70   (2) 60   (3) 67.2   (4) 80

12. The mean deviation about median of variates 13, 14, 15, ... , 99, 100 is

(1) 1936   (2) 21.5   (3) 23.5   (4) 22

13. The first of the two samples has 100 items with mean 15 and S.D. 3. If the whole group has 250 items with mean 15.6 and S.D. = $\sqrt{13.44}$ then S.D. of the second group is

(1) 5   (2) 4   (3) 6   (4) 3.52

14. Consider the following statements   **[AIEEE 2004]**

(i)   Mode can be computed from histogram

(ii)   Median is not independent of change of scale

(iii)   Variance is independent of change of origin and scale

Which of these is/are correct?

(1) Only (i)   (2) Only (ii)   (3) Only (i) and (ii)   (4) (i), (ii) and (iii)

15. In a series of 2n observations, half of them equal a and remaining half equal – a. If the S.D. of the observations is 2, then |a| equals

(1) $\dfrac{1}{n}$ (2) $\sqrt{2}$ (3) 2   (4) $\dfrac{\sqrt{2}}{n}$ **[AIEEE 2004]**

16. If in a frequency distribution, the mean and median are 21 and 22 respectively, then its mode is approximately

                                                             [AIEEE 2005]

(1) 20.5   (2) 22.0   (3) 24.0   (4) 25.5

17. Let $x_1, x_2, ... x_n$ be n observations such that $\sum x_i^2 = 400$ and $\sum x_i = 80$. Then a possible value of n among the following is   **[AIEEE 2005]**

(1) 12   (2) 9   (3) 18   (4) 15

18. Suppose a population A has 100 observations 101, 102, ..., 200 and another population B has 100 observations 151, 152, ..., 250. If V_A and V_B represent the variances of the two populations respectively, then V_A/V_B is   **[AIEEE 2006]**

(1) 1   (2) 9/4   (3) 4/9   (4) 2/3

19. The average marks of boys in a class is 52 and that of girls is 42. The average marks of boys and girls combined is 50. The percentage of boys in the class is   **[AIEEE 2007]**

(1) 40%   (2) 20%   (3) 80%   (4) 60%

20. The mean of the number a, b, 8, 5, 10 is 6 and the variance is 6.80. Then which one of the folowing gives possible values of a and b ?   **[AIEEE 2008]**

(1) a = 3, b = 4   (2) a = 0, b = 7   (3) a = 5, b = 2   (4) a = 1, b = 6

21. **Statement-I** The variance of first n even natural numbers is $\dfrac{n^2-1}{4}$ **[AIEEE 2009]**

Statement-II The sum of first n natural numbers is $\dfrac{n(n+1)}{2}$ and the sum of squares of first n natural numbers is $\dfrac{n(n+1)(2n+1)}{6}$.

(1) Statement-1 is True, Statement-2 is True; Statement-2 is a correct explanation for Statement-1.

(2) Statement-1 is True, Statement-2 is True; Statement-2 is NOT a correct explanation for Statement-1

(3) Statement-1 is True, Statement-2 is False

(4) Statement-1 is False, Statement-2 is True

22. If the mean deviation of numbers 1, 1 + d, 1 + 2d, ...,1 + 100d from their mean is 255, then the value of d is equal to-   **[AIEEE 2009]**

(1) 10.0   (2) 20.0   (3) 10.1   (4) 20.2

23. $M(x_1, x_2, x_3 \ldots\ldots\ldots x_n)$ defines a measure of central tendency based on n values $x_1, x_2, x_3, \ldots\ldots\ldots x_n$ consider the following measured of central tendency

(1) Arithmetic mean

(2) Median

(3) Geometric mean

which of the above measure satisfie/ satisfies the property

$$\frac{M(x_1, x_2, x_3 \ldots\ldots\ldots x_n)}{M(y_1, y_2, y_3 \ldots\ldots\ldots y_n)} = M.\left(\frac{x_1}{y_1}, \frac{x_2}{y_2}, \frac{x_3}{y_3}, \ldots\ldots, \frac{x_n}{y_n}\right)?$$

select the correct answer using the code below

(1) 1 only   (2) 2 only   (3) 3 only   (4) 1 and 3

24. If the mean deviation about the median of the numbers a, 2a, ..., 50a is 50, then |a| equals :

[AIEEE 2011]

(1) 2   (2) 3   (3) 4   (4) 5

25. A scientist is weighing each of 30 fishes. Their mean weight worked out is 30 gm and a standard deviation of 2 gm. Later, it was found that the measuring scale was misaligned and always under reported every fish weight by 2 gm. The correct mean and standard deviation (in gm) of fishes are respectively :

[AIEEE 2011]

(1) 32, 2   (2) 32, 4   (3) 28, 2   (4) 28, 4

26. The mean and variance of 10 numbers were calculated as 11.3 and 3.3 respectively. It was subsequently found that one of the a number was misread as 10 instead of 12. How does the variance change.

(1) variance decreases   (2) variance increases

(3) nothing can be said about variance   (4) variance remains unchanged.

27. The average weight of 9 men is x kg. After another men joins the group, the average increases by 5%. Still another man joins and average returns to old level of x kg. Which one of the following true?

(1) the 10th & 11th men weight same

(2) the 10th man weight half as much as the 11th man

(3) the 10th man weight as much as the 11th man

(4) None of these

28. The average marks of 10 students in a class was 60 with standard deviation 4. While the average marks of other 10 students was 40 with a standard deviation 6. If all the 20 students are taken together, their standard deviation will be

(1) 5.0   (2) 7.5   (3) 9.8   (4) 11.2

29. N observations on a variable x are $x_i = A + iB$ for i = 1, 2, 3, ..., n where A, B are real constants. The mean of the observation is

(1) $A + B\,\dfrac{(n+1)}{2}$ (2) $nA + B\,\dfrac{(n+1)}{2}$ (3) $A + Bn\,\dfrac{(n+1)}{2}$ (4) $A + B\left(\dfrac{n}{2}\right)$

30. The mean of the data set comprising of 16 observations is 16. If one of the observation valued 16 is deleted and three new observations valued 3, 4 and 5 are added to the data, then the mean of the resultant data, is

[JEE(Main) 2015]

(1) 16.8   (2) 16.0   (3) 15.8   (4) 14.0

ANSWERKEY

1.	(1)	**2.**	(4)	**3.**	(1)	**4.**	(1)	**5.**	(2)	**6.**	(2)	**7.**	(1)
8.	(3)	**9.**	(2)	**10.**	(1)	**11.**	(3)	**12.**	(4)	**13.**	(2)	**14.**	(3)
15.	(3)	**16.**	(3)	**17.**	(3)	**18.**	(1)	**19.**	(3)	**20.**	(1)	**21.**	(4)
22.	(3)	**23.**	(3)	**24.**	(3)	**25.**	(1)	**26.**	(1)	**27.**	(4)	**28.**	(4)
29.	(1)	**30.**	(4)										