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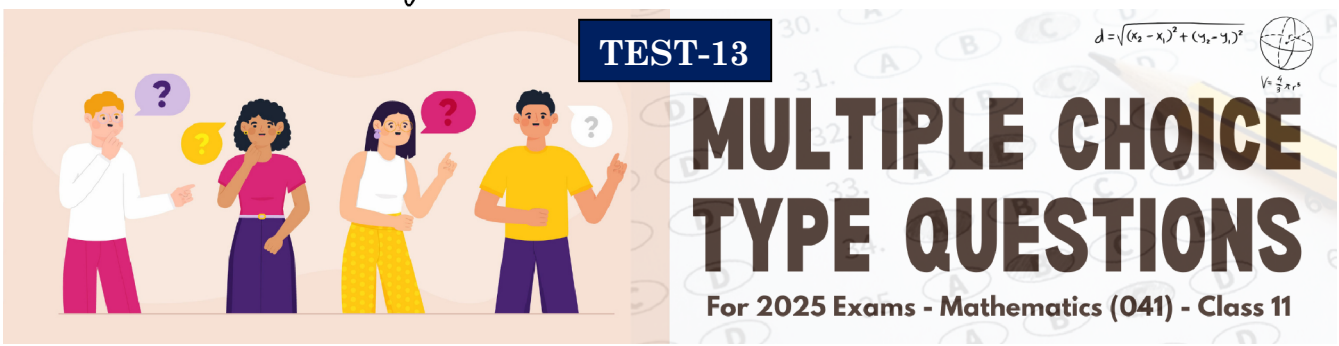

☑ ***Select the correct option in the followings. Each question carries 1 mark.***

01. The variance of 10 observations is 25 and their mean is 13. If each observation is multiplied by 4, what is the new mean?

(a) 100 (b) 400 (c) 52 (d) 5

02. Which of the following is **incorrect**?

(a) M.D. $(\bar{x}) = \dfrac{\sum_{i=1}^{n} f_i |x_i - x|}{\sum_{i=1}^{n} f_i}$ (b) M.D. $(M) = \dfrac{\sum_{i=1}^{n} f_i |x_i - M|}{\sum_{i=1}^{n} f_i}$

(c) $\sigma^2 = \dfrac{1}{N}\sum_{i=1}^{n} f_i x_i^2 - (\bar{x})^2$ (d) $\sigma^2 = \dfrac{1}{N}\sum_{i=1}^{n} f_i |x_i - \bar{x}|^2$

03. The variance of 12 observations is 16 and their mean is 14. If each observation is multiplied by 4, what is the new standard deviation?

(a) 4 (b) 8 (c) 16 (d) 32

04. The standard deviation of 25 observations is 4 and their mean is 25. If each observation is increased by 10, what is the new mean?

(a) 16 (b) 39 (c) 30 (d) 35

05. The standard deviation of 35 observations is 4 and their mean is 25. If each observation is increased by 10, what is the new variance?

(a) 4 (b) 14 (c) 16 (d) 25

06. Marks scored by the students of class XI in Maths unit test are given by : 53, 46, 48, 50, 53, 53, 58, 60, 57, 52. What will be the range of this data?

(a) 106 (b) 14 (c) 35 d) 60

07. The mean of 100 observations is 50 and their standard deviation is 5. The sum of squares of all the observations is

(a) 250025 (b) 250000 (c) 252500 (d) 255000

08. Let x_1, x_2, x_3, x_4, x_5 be the observations with mean 'm' and standard deviation 's'.

The standard deviation of the observations $px_1, px_2, px_3, px_4, px_5$ is

(a) $p+s$ (b) $\dfrac{s}{p}$ (c) ps (d) s

09. If variance of the data a, b, c, d, e is 2025, then the variance of $3a+4, 3b+4, 3c+4, 3d+4, 3e+4$ is given by

(a) 2025 (b) 18225 (c) 18252 (d) 18290

10. Mean deviation about the median for the data 3, 3, 4, 5, 7, 9, 10, 12, 18, 19, 21 is

(a) 5.27 (b) 5.72 (c) 9 (d) 7.52

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*Question numbers **11** to **15** are Assertion and Reason based questions. Two statements are given, one labelled **Assertion (A)** and the other labelled **Reason (R)**. Select the correct answer from the codes (a), (b), (c) and (d) as given below.*

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) and Reason (R) are true and Reason (R) is **not** the correct explanation of Assertion (A).
(c) Assertion (A) is true but Reason (R) is false.
(d) Assertion (A) is false but Reason (R) is true.

11. **Assertion (A) :** Variance of the observations 6, 8, 10, 12, 14, 16, 18, 20, 22, 24 is 33. Then the variance of 1, 3, 5, 7, 9, 11, 13, 15, 17, 19 is also 33.

Reason (R) : If each of the observation $x_1, x_2, ..., x_n$ is increased by 'k', where 'k' is a negative or positive real number, then the variance remains unchanged.

12. **Assertion (A) :** The variance of $4, 4, 4, 4$ is zero.

Reason (R) : Variance $(\sigma^2) = \frac{1}{n}\sum_{i=1}^{n}(x_i - \bar{x})^2$.

13. **Assertion (A) :** The mean of $5, 4, 1, 6, 9$ is 5.

Reason (R) : Standard deviation for N observations given by $x_1, x_2, ..., x_n$ is $\frac{1}{N}\sum_{i=1}^{n}(x_i - \bar{x})^2$.

14. **Assertion (A) :** If the variance of observations $x_1, x_2, ..., x_n$ is given to be V, then the variance of observations $\lambda x_1, \lambda x_2, \lambda x_3, ..., \lambda x_n$ is $\lambda^2 V$.

Reason (R) : Variance of n observations $x_1, x_2, ..., x_n$ is given by $\sqrt{\frac{1}{n}\sum_{i=1}^{n}(x_i - \bar{x})^2}$.

15. **Assertion (A) :** Mean of first n natural numbers is given by $\frac{n(n+1)}{2}$.

Reason (R) : Mean $(\bar{x}) = \frac{1}{N}\sum_{i=1}^{n} x_i$.

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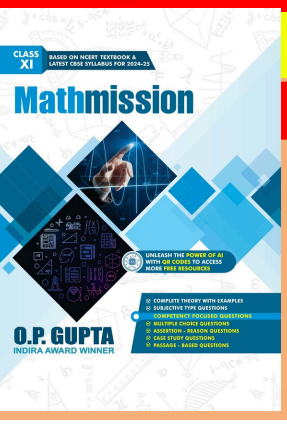

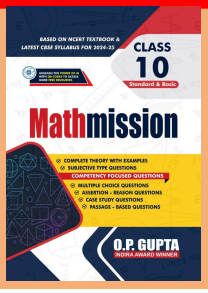

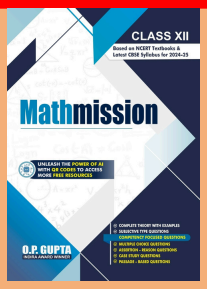

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