Syllabus:

1. Univariate descriptive statistics
2. Sampling distribution

1. If ‘y’ is a random variable with mean ‘µ’, variance \( \sigma^2 \), and ‘c’ is a constant, then variance of ‘c’ will be – (Marks – 1)
   a) \( \sigma^2 \)
   b) 0
   c) c
   d) None of the above

2. If ‘y’ is a random variable with mean ‘µ’, variance \( \sigma^2 \), and ‘c’ is a constant, then the expected value of ‘cy’, i.e., E(cy) will be – (Marks – 1)
   a) c
   b) µ
   c) c \( \mu \)
   d) None of the above

3. The number of degrees of freedom for computing standard deviation, ‘s’, from a sample of size ‘n’ equals to – (Marks – 1)
   a) \( (n-1) \)
   b) n
   c) n(n-1)
   d) None of these

4. Suppose a random sample of size ‘n’ is taken from a normal population with mean ‘µ’ and variance \( \sigma^2 \). Then the mean and variance of sample mean (\( \bar{X} \)) are – (Marks – 1)
   a. (\( \mu, 1/\sigma^2 \))
   b. (\( \mu, \sigma^2 \))
5. If ‘X’ is normally distributed with mean 50 and standard deviation 4. For a sample of size 
n = 25, what will be the mean and variance of sample mean, \( \bar{X} \) \hspace{1cm} (Marks – 1)
   a. (50, 4)
   b. (50, 4/25)
   c. (50, 16/25)
   d. None of the above

6. Using the data given in Q. 11, the approximate value of P(\( \bar{X} \leq 49 \)) will be (Marks – 1)
   a. 0.0011
   b. 0.1056
   c. 0.7251
   d. None of the above

7. Using the data given in Q. 11, compute P(49 < \( \bar{X} \) < 52) \hspace{1cm} (Marks – 2)
   a. 0.0402
   b. 0.3020
   c. 0.6098
   d. 0.8884

8. Using the data given in Q. 11, compute the P(\( \bar{X} \geq 52 \)) \hspace{1cm} (Marks – 1)
   a. 0.0060
   b. 0.8242
   c. 0.5402
   d. None of the above

9. The following sample data are collected from a study. \hspace{1cm} (Marks – 6)
   \[
   5 \hspace{0.5cm} 10 \hspace{0.5cm} 9 \hspace{0.5cm} 10 \hspace{0.5cm} 5 \hspace{0.5cm} 3 \hspace{0.5cm} 2 \hspace{0.5cm} 1 \hspace{0.5cm} 10 \hspace{0.5cm} 7 \hspace{0.5cm} 3 \hspace{0.5cm} 10 \hspace{0.5cm} 5 \hspace{0.5cm} 5 \hspace{0.5cm} 5
   \]
   The mean of the given dataset is-
   i) 6
   ii) 7
   iii) 5
iv) 4

10. The median of the given dataset (in Q.9) is-
   i. 4
   ii. 8
   iii. 5
   iv. 7

11. The mode of the given dataset (in Q.9) is-
   i. 5
   ii. 6
   iii. 7
   iv. 10

12. The range of the given dataset (in Q.9) is-
   i. 5
   ii. 6
   iii. 7
   iv. 9

13. The standard deviation of the given dataset (in Q.9) is-
   i. 3.99
   ii. 3.54
   iii. 3.14
   iv. 4.01

14. The inter quartile range (IQR) of the given dataset (in Q.9) is-
   i. 6.29
   ii. 6.01
   iii. 7.00
   iv. 6.25

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