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SYLHET CADET COLLEGE
Year Final EXAMINATION - 2025
CLASS: XI
SAQ and MCQ
STATISTICS
FIRST PAPER
[According to the Syllabus of 2025]
TIME – 25 minutes
FULL MARKS – 25

Ques Setter	
Moderator	
VP	

Subject Code: | 1 | 2 | 9 |

Set: | C |

[N.B. – Answer all the questions. Each question carries ONE mark. Block fully, with a black ball- point pen, the circle of the letter that stands for the correct/best answer in the "Answer sheet" for the Multiple Choice Questions Examination.]

Candidates are asked not to leave any mark or spot on the question paper.

Short Answer Questions $10 \times 1 = 10$

1. If the scores of five students in a test are 78, 85, 92, 88, 95, find $\sum_{i=1}^{5}(x_i^2 - 2x_i + 3)$ _____
2. What is an open-ended distribution? _____
3. Does Median always lie in the data set from which it is calculated? _____
4. If $\bar{X} = 25, CV = 50\%, \sigma^2 =$? _____
5. Which Percentile is equal to 3rd Quartile? _____
6. What is the second central moment of the first 5 natural numbers? _____
7. What does $\gamma_2 > 0$ imply? _____
8. Which measure of dispersion is suitable for an open-ended distribution? _____
9. Two sets of variables have correlation $r_1 = 0.75$ and $r_2 = -0.82$. Which set has stonger linear association? _____
10. What is the additive model of time series? _____

Multiple Choice Questions

1. **Which is not an example of shift of scale?**
   (a) $y_i = \frac{x_i}{a}$ (b) $y_i = cx_i$ (c) $y_i = x_i - 2$ (d) $y_i = \frac{cx_i}{d}$
2. **Given** $\sum_{i=1}^{10} a_i^2 = 40$ **and** $\sum_{i=1}^{10} a_i = 20$**, find the value of** $2\sum_{i=1}^{10} a_i^2 - 3\sum_{i=1}^{10} a_i + 60$**.**
   (a) 70 (b) 100 (c) 80 (d) 50
3. **A researcher collected data on age and income of the people in a city. The variables are –**
   i. bi-variate
   ii. quantitative
   iii. qualitative
   Which one is correct?
   (a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii

Answer the next two questions based on the following plot

Data: 18, 21, 22, 23, 24, 26, 31, 33, 33, 35, 37, 42

Stem	Leaf
1	8
2	1 2 3 4 6
3	1 3 3 5 7
4	2

Key: 2 \| 1 means **21**

4. **How many data values are greater than 30 in the stem-and-leaf plot?**

   (a) 3 (b) 4 (c) 5 (d) 6

5. **What is the median of the data shown in the stem-and-leaf plot?**

   (a) 26 (b) 31 (c) 30 (d) 29

6. **If $\sum(x_i - k) = 0$, what is the value of k?**

   (a) n (b) $\bar{x}$ (c) x (d) $n\bar{x}$

7. **Median is –**

   i. Affected by extreme values
   ii. Rigidly defined
   iii. Suitable for open-ended distributions

   Which one is correct?

   (a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii

8. **Which of the following may be used to determine mode?**

   (a) Histogram (b) Frequency Curve (c) Ogive (d) Frequency Polygon

9. **What is the minimum possible value of standard deviation?**

   (a) ∞ (b) -1 (c) 0 (d) 1

10. **The mean and coefficient of variation of a distribution are 5 and 30%, respectively. What is the value of standard deviation?**

    (a) 1.5 (b) 6.5 (c) 7.6 (d) 10.2

Answer the next two questions based on the following information

The temperatures (in ^oC of two cities in a country are 30 and 35.

11. **What is their Mean deviation?**

    (a) 1.2 (b) 2.5 (c) 3.0 (d) 5.5

12. **What is the coefficient of variation?**

    (a) 2.7% (b) 8.3% (c) 5.8% (d) 7.7%

Answer the next two questions based on the following information

A study was conducted to find the impact of study hour on students' GPA and the following was found:

$$\sum(x_i - \bar{x})(y_i - \bar{y}) = 30, \sum(x_i - \bar{x})^2 = 45, \text{ and } \sum(y_i - \bar{y})^2 = 55$$

13. **What is the value of correlation coefficient?**

    (a) 0.50 (b) 0.60 (c) -0.60 (d) -0.50

14. **What is the value of b_{yx}?**

    (a) 0.58 (b) -0.67 (c) 0.67 (d) -1.75

"Absence of evidence is not evidence of absence." — Carl Sagan