Sylhet Cadet College

First Term-End Examination - 2023

Class: XI

Subject: Statistics First Paper (Creative) **Set: A**

Time: 2 hour & 10 minutes **Subject Code: 129** **Full Marks: 50**

Answer all the FIVE questions. Figures in the right indicate full marks.

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1. **Height (in inches) of 10 cadets in a class are: 50, 60, 55, 65, 66, 70, 54, 64, 62, 72**

   (a) What is population in statistics? 1

   (b) Is height discrete or continuous? 2

   (c) Find $\sum_{i=1}^{10} x_i^2$ 3

   (d) Find the square of mean and mean of square. Are they equal? 4

2. **For two non-zero positive numbers, $GM = 4\sqrt{3}$ and $HM = 6$, where the quantities bear usual notations**

   (a) When is Harmonic mean suitable? 1

   (b) For two numbers, what is the relationship between AM, GM, and HM? 2

   (c) What is the Arithmetic mean? 3

   (d) Determine the numbers. 4

3. **Hourly wages of 100 workers in an idustry were collected by a market analyst. The analyst desires to mine a patter and useful insights from the collected data about the industry. The obtained data are demonstrated below:**

Wage	51-55	56-60	61-65	66-70	71-75	76-80	81-85
Number of workers	7	11	18	36	15	8	5

   (a) What is class interval? 1

   (b) How does a frequency distribution help us to find patter in data? 2

   (c) Draw an Ogive from the data provided and explain. 3

   (d) Write five useful insights about the data combining information from Ogive and the table. 4

4. **12 is deducted from each value of a variable and then divided by 3. The new arithmetic mean (AM) is found to be 4.**

   (a) What is change of origin? 1

   (b) Does AM depend on origin? Prove with an example. 2

   (c) From the stem, find the original AM. 3

   (d) Does the origin or the scale have greater impact on AM in this example? 4

5. **Two companies A and B pay their workers on a weekly basis. The summary of wages paid by them is shown below:**

Factory	Wage (BDT)	Standard Deviation	Number of workers
A	1560	90	200
B	1580	70	160

   (a) What is dispersion? 1

   (b) Is variance always greater than stanard deviation? Justify. 2

   (c) Which company is more consistent with their wages? 3

   (d) Find the combined Coefficient of Variance (CV) and compare with individual companies. 4