<div align="center">

Sylhet Cadet College
Fortnightly Examination - 2024
Class: XII
2nd Term
Subject: Statistics First Paper

</div>

Time: 40 minutes   **Subject Code: 129**   **Full Marks: 20**

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

1. A neutral coin is tossed thrice. Denote the number of heads appeared as X.

    (a) Create the probability distribution of X.   3

    (b) Find the probabilities: $P(X > 2)$, there are no tails.   2

2. A joint probability density function is given below:

$$f(x) = x^2 + \frac{1}{3}xy; 0 \le x \le 1, 0 \le y \le 2$$

    (a) Find $f(x)$ and $f(y)$ 4

    (b) Find $f(x|y)$ and $f(y|x = 1)$ 4

3. **The probability distribution of a discrete random variable X is given below:**

x	-2	-1	0	1	3	4
P(x)	0.1	k	2k	3k	4k	0.2

    (a) Find the value of k 3

    (b) Find $F(x)$ and hence $P(X \le 0)$ and $P(X > 1)$ 4