



United International University
School of Science and Engineering

CT-02 Trimester: Summer-2020 Section: B

Course Title: Probability and Statistics

Course Code: Stat 205 Marks: 20 Time: 30 Mins

(Answer all the questions)

1. For $f(x) = c(x + 1)^2$; $x = 0, 1, 2, \dots, 10$, determine the constant c so that $f(x)$ satisfies the conditions of being **pmf** for a random variable X , and then depict **pmf** as **line graph** and **histogram**. [10]
2. In the gambling game craps, the player wins \$1, \$2 and \$3 with probabilities 0.3, 0.2 and 0.1, and loses \$1 with probability 0.4 for each \$1 bet. What is the **expected profit** of the game for the player? Also, **find** the **variance** of the profit. [6]
3. It is claimed that for a particular lottery, $\frac{1}{10}$ of the 50 million tickets will win a prize. What is the probability of winning **at least one** prize if you purchase **10** tickets. [4]