

ECE302F Lecture Group 04 Quiz 3

Rules:

- No books or aid sheets of any sort allowed;
 - Non-programmable electronic calculators CAN be used;
 - Total duration of quiz: 30 minutes;
 - Answer all questions.
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1. Random variables X and Y have the joint PMF

$$P_{X,Y}(x, y) = \begin{cases} c|x + y| & x = -2, 0, 2; y = -1, 0, 1 \\ 0 & \text{otherwise.} \end{cases}$$

- (a) Find c . (3 marks)
- (b) Let $W = X + 2Y$. Find the PMF $P_W(w)$ of the new random variable W . (3 marks)
- (c) Find the expected value $E[W]$ of W . (2 marks)
2. Random variables X and Y have CDFs $F_X(x)$ and $F_Y(y)$. Is $F(x, y) = F_X(x)F_Y(y)$ a valid CDF? Explain your answer. (2 marks)