

BTech II (CSE) Semester IV – Mid Semester Examination March 2021

Subject: MA 212 Linear Algebra and Statistical Analysis, Time: 9:00 – 9:45 am

* Required

The joint probability function of two discrete random variables X and Y is given by $f(x, y) = c(2x + y)$, where x and y can assume all integers such that $2 \geq x \geq 0$, $3 \geq y \geq 0$, and $f(x, y) = 0$ otherwise.

Answer following question based on this data:

The marginal probability $P_x(X=2) = *$

- ☐ 1/7
- ☐ 7/42
- ☐ None
- ☒ 11/21
- ☐ 2/7

$P(X = 2, Y = 1) = *$

- ☒ 5/42
- ☐ 7/12
- ☐ None
- ☐ 7/42
- ☐ 5/12



$P(X \geq 1, Y \geq 2) = \underline{\hspace{1cm}}$ *

- ☒ 4/7
- ☐ can't be calculated
- ☐ 2/7
- ☐ 1/7

For $f(x, y) = c(2x + y)$ to be probability mass function, the value of the constant c __ *

- ☐ 14
- ☐ 1/14
- ☐ 42
- ☐ None of these
- ☒ 1/42

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