

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATIONS-2022

B.Tech-III Semester (CS/IT)

COURSE CODE (CREDITS): 19B1WCI737

MAX. MARKS: 15

COURSE NAME: Optimization methods in Business analytics

COURSE INSTRUCTORS: Dr. Rakesh Kanji

MAX. TIME: 1 Hour

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Q1. $\text{Max } 3X_1 + 4X_2$ [CO2]

Such that, $2X_1 + 3X_2 \geq 8$

$5X_1 + 2X_2 \leq 12$

[5]

Q2.

$\text{Max } 4X_1 + 3X_2$

Such that, $2X_1 + 3X_2 \leq 8$

$3X_1 + 2X_2 \leq 12$

[CO2]

Does this Linear programming problem face degeneracy

[5]

Q3. Explain the fundamental theorem of LPP.

OR

[CO1]

Prove that $S = \{(X_1, X_2) | X_1^2 + X_2^2 \leq 1\}$ is a convex set

[5]