

RAGHUNATHPUR COLLEGE
DSC SEM-V INTERNAL EXAMINATION-2020
COURSE CODE:-BMTMDSRT1
COURSE TITLE:-LINEAR PROGRAMMING

Answer any one question:-

- a) ii) solve the LPP graphically

$$\text{MAXIMIZE } Z = \text{Maximize } Z = 5x_1 + 7x_2$$

$$\text{subject to } 3x_1 + 8x_2 \leq 12$$

$$x_1 + x_2 \leq 2$$

$$2x_2 \leq 3$$

$$x_1, x_2 \geq 0$$

- ii) Solve the following LPP by simplex method $\text{Maximize } Z = 60x_1 + 50x_2$

$$\text{Subject to } x_1 + 2x_2 \leq 40$$

$$3x_1 + 2x_2 \leq 60$$

$$x_1, x_2 \geq 0$$

5+5

- b) i) Find the basic solutions of the given set of equations

$$2x + 2y - 5z = 5$$

$$4x + 2y + 4z = 6$$

Mention which are basic feasible solutions among the basic solution.

- ii) Prove that in E^2 , the set $X = \{(x, y), x + 2y \leq 5\}$ is convex set.

- iii) Express $(5, 2, 1)$ as a linear combination of $(1, 4, 0)$, $(2, 2, 1)$ and $(3, 0, 1)$

5+3+2