

Q M2 B1

(a) Solve the following problem by simplex method

Maximize $Z=3x+5y+7z$

subject to

$$3x+2y+4z \leq 100$$

$$x+4y+2z \leq 100$$

$$x+y+3z \leq 100$$

$$x, y, z \geq 0$$

OR

(b) Apply the simplex algorithm to solve the following linear model

Minimize $Z = x - 3y + 2z$

subject to

$$3x - y + 2z \leq 9$$

$$- 2x + 4y + z \leq 14$$

$$- 4x + 4y + 8z \leq 10$$

$$x, y, z \geq 0$$

Q M2 B2

(a) Solve the following LPP by simplex method

Maximize $p = 2x - 3y + 4z$ subject to the constraints

$$4x - 3y + z \leq 3$$

$$x + y + z \leq 10$$

$$2x + y - z \leq 10,$$

$$x \geq 0, y \geq 0, z \geq 0$$

OR

(b) Maximize $z = 3x + 2y$

subject to the constraints :

$$2x + y \leq 2,$$

$$3x + 4y \geq 12$$

$$x, y \geq 0$$

Use Big M method to solve the above LP Model

Q M2 B3

(a) Apply the simplex algorithm to solve the following linear model

$$\text{Minimize } Z = x - 3y + 2z$$

subject to

$$3x - y + 2z \leq 9$$

$$-2x + 4y + z \leq 14$$

$$-4x + 4y + 8z \leq 10$$

$$x, y, z \geq 0$$

OR

(b) Maximize $z = x + 5y$

subject to

$$3x + 4y \leq 6$$

$$x + 3y \geq 2$$

$$x, y \geq 0$$

Use Big M method to solve the above LP Model

Q M2 B4

(a) What do you mean by LPP? What are its limitations? Use penalty(or Big M) method to solve the following

Maximize $Z = 3x - y$

Subject to

$2x + y \geq 2$

$x + 3y \leq 3$

$y \leq 4$

$x, y \geq 0$

OR

(b) Maximise $Z = 2x + y$

subject to

$x + 2y \leq 10$

$x + y \leq 6$

$x - y \leq 2$

$x - 2y \leq 1$

$x \geq 0, y \geq 0$

Solve by simplex method.

Q M2 B5

(a) Maximize $Z = 40x + 30y$

Subject to

$$x + y \leq 12$$

$$2x + y \leq 16$$

$$x, y \geq 0$$

Solve by simplex method.

OR

(b) Consider the following linear program :

Minimize $Z = 3x + y + 4z$

subject to

$$x + 2y \geq 3$$

$$x + 2z \geq 2$$

$$2x + 3y + z \geq 4$$

$$x, y, z \geq 0$$

Find the dual of the above and Solve it by simplex method?