

**ASSIGNMENT : 3**

**UNIT : 2 Exercise and case problems on Simplex, Big M and Two phase LP Problems**

1. Write the dual of the following linear programming problem.

$$\text{Minimize, } Z = 20 X_1 + 23 X_2$$

Subjected to,

$$- 4X_1 - X_2 \leq -8$$

$$5X_1 - 3X_2 = - 4$$

$$X_1, X_2 \geq 0$$

Solve the Dual problem using simplex method and predict the value of variables  $X_1, X_2$  from the solution of dual linear programming problem.

2. Solve the following LPP by Big – M Method

$$\text{Maximize } Z = x_1 + 2x_2 + 3x_3 - x_4$$

$$\text{Subjected to } x_1 + 2x_2 + 3x_3 = 15$$

$$2x_1 + x_2 + 5x_3 = 20$$

$$x_1 + 2x_2 + x_3 + x_4 = 10 ; x_i \geq 0 ; i = 1, 2, 3, 4$$

