

DEPARTMENT: MECHANICAL

SEMESTER : 7

SUBJECT NAME: OPERATION RESEARCH

SUBJECT CODE: 2171901

FACULTY NAME: Assist. Prof. Kedar H Badheka

ASSIGNMENT: 3

<u>UNIT : 2 Exercise and case problems on Simplex, Big M and Two phase LP</u> Problems

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

Minimize, Z = 20 X1 + 23 X2

Subjected to,

 $-4X1 - X2 \le -8$

5X1 - 3X2 = -4

 $X1, X2 \ge 0$

Solve the Dual problem using simplex method and predict the value of variables X1, X2 from the solution of dual linear programming problem.

2. Solve the following LPP by Big – M Method

Maximize $Z = x_1 + 2 x_2 + 3x_3 - x_4$

Subjected to $x_1 + 2 x_2 + 3x_3 = 15$

 $2x_1 + x_2 + 5x_3 = 20$

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

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