

Pg# (6)

Q2: Solve the following linear Programming Problem.

$$\min z = 2x_1 + 3x_2$$

$$\text{s.t. } (1/2)x_1 + (1/4)x_2 \leq 4$$

$$x_1 + x_2 = 10$$

$$x_1 + 3x_2 \geq 20$$

$$x_1, x_2 \geq 0$$

**Solution:**

Step 1: If any constrain have negative constants on the right side multiply it by (-1).

Step 2: Introduce a slack variable in each  $\leq$  constrain.

Step 3: Introduce a slack variable and an artificial in each  $\geq$  constrain.

Step 4: Introduce an artificial variable in each  $=$  to constrain.

Step 5: for each  $a_i$  add  $-Ma_i$  to the objective function.