



ISL Engineering College, Hyderabad

Subject:OR

Faculty:MDBAHAUDDIN

Year:Second Year-third sem

IMPORTANT QUESTION FOR THE INTERNAL EXAMINATION

SAQ

Q1): Define operation research. and explain scope of operation research. **(BTL:2,CO:1,PO:3)**

Q2):- Explain characteristics of operation research. **(BTL:2,CO:2,PO:4)**

Q3):- Primal to dual conversion. **(BTL:6,CO:1,PO:3)**

$$\text{Max}z=3x_1+4x_2$$

Subject to $2x_1+6x_2 \leq 16$

$$5x_1+2x_2 \geq 20$$

$$x_1, x_2 \geq 0$$

Q4): Difference between primal to dual. **(BTL: 2, CO: 3, PO: 2)**

Q5):- Explain phases of operation research. **(BTL: 2, CO: 2, PO: 4)**

Q6):- Solve the LPP by Graphical method. **(BTL: 3, CO: 2, PO: 3)**

$$\text{max } Z=3X_1+2X_2$$

Subject To $x_1+x_2 \geq 4$

$$x_1+x_2 \leq 1$$

$$x_1, x_2 \geq 0$$

Q7):- Primal to dual conversion. **(BTL:3, CO:1,PO:3)**

$$\text{MIN}Z = 2X_2 + 5X_3$$

Subject to $x_1+x_2 \geq 2$

$$2x_1+x_2+6x_3 \leq 6$$

$$x_1-x_2+3x_3=4$$

$$\text{and } x_1, x_2, x_3 \geq 0$$

Q8):- Primal to dual conversion. **(BTL:3,CO:1,PO:3)**

$$\text{Max}z=x+2y$$

subject to

$$2x+3y \geq 43$$

$$x+4y=5$$

$x \geq 0, y$ is unrestricted

LAQ

Q1):-A small scale industry produce three rubber Products. These product are processed on three different Machines. The time required to manufacture on unit of each of the three different Machines. the time required to manufacture one unit of each of the three products and the daily capacity of the three machines is given in the table below

Machine	Time per unit (min.)			Machine Capacity (Minutes / day)
	Product 1	Product 2	Product 3	
M ₁	2	3	2	440
M ₂	4	-	3	420
M ₃	2	5	-	430

It is required to Determine the daily number of units to be manufactured for each product. The profit per unit for product 1,2 and 3 are RS.4,RS 5,RS.6 respectively. It is assumed that all the quantities produced are consumed in the market. Formulate this an LP problem. (BTL: 3,CO: 2,PO: 3)

Q2):-solve the LPP by simplex method. (BTL:3,CO:1,PO:3)

$$\min Z = x_1 - 3x_2 + 2x_3$$

$$\text{Subjected to } 3x_1 - x_2 + 3x_3 \leq 7$$

$$-2x_1 + 4x_2 \leq 12$$

$$-4x_1 + 3x_2 + 8x_3 \leq 10$$

$$x_1, x_2, x_3 \geq 0$$

Q3):-Solve the L.P. by graphical method. (BTL:3,CO:1,PO:3)

$$\text{Max } z = 3x_1 + 2x_2$$

$$\text{Subject to } x_1 - x_2 \geq 1$$

$$x_1 + x_2 \geq 3$$

$$x_1, x_2 \geq 0$$

Q4):-Solve the LPP by Graphical Method. (BTL:3,CO:1,PO:3)

$$\text{Maximize } Z = 100X_1 + 40X_2$$

$$\text{Subject to } 5X_1 + 2X_2 \leq 1000$$

$$3X_1 + 2X_2 \leq 900$$

$$X_1 + 2X_2 \leq 500$$

$$X_1, X_2 \geq 0$$

Q5):-Solve the following LPP by Simplex method. (BTL:3,CO:1,PO:3)

$$\text{Max } z = 80x_1 + 55x_2$$

$$\text{Subject to } 4x_1 + 2x_2 \leq 40$$

$$2x_1 + 4x_2 \leq 32$$

$$\text{and } x_1, x_2 \geq 0$$

Q6):-Solve the L.P. by graphical method. (BTL:3,CO:1,PO:3)

$$\text{Max } z = 3x_1 + 2x_2$$

$$\text{Subject to } x_1 - x_2 \geq 1$$

$$x_1 + x_2 \geq 3$$

$$x_1, x_2 \geq 0$$

