4 SEM TDC MTHG (FROM CBCS)

2021

MATHEMATICS - GENERAL - COURSE 401

(Linear Programming)

Full Marks : 13

Pass Marks : 5/4 Time : 1 hours.

Answer any two questions: $5 \times 2 = 10$

1(a) Using simplex method, solve the following LPP.

Maximize $z = 3x_1 + 2x_2$

Subject to $x_1 + x_2 \leq 4$

$x_1 - x_2 \leq 2$

and $x_1, x_2 \geq 0$

(b) Solve graphically the following LPP.

Minimize $z = x_1 - 2x_2$

Subject to $-2x_1 + x_2 \leq 8$

$-x_1 + 2x_2 \leq -24$

and $x_1, x_2 \geq 0$

(c) Write a short note on vogel's approximation.

(d) Obtain the dual problem of the following primal LP problem.

Minimize : $z = x_1 + 2x_2$

Subject to $2x_1 + 4x_2 \leq 160$

$x_1 - x_2 = 30$

$x_1 \geq 10$

and $x_1, x_2 \geq 0$

2. Explain the primal-dual relationship 3

OR

Define ~~unbla~~ unbalanced transportation problem. and write the mathematical formulation of a transportation problem.