

Gurudas College
STATISTICS [General]
Semester-V, Paper-DSE-A
Practical Examination, 2021-22
Date of Examination: Jan 29, 2022

Time: 12pm-2:30pm

Marks: 30

Attempt all the following questions

1. (a) Find the initial basic feasible solution of the following balanced transportation problem with the help of matrix minima and VAM method and compare their corresponding costs.

	D_1	D_2	D_3	D_4	a_i
O_1	15	28	13	21	18
O_2	22	15	19	14	14
O_3	16	12	14	31	13
O_4	24	23	15	30	20
b_j	16	15	10	24	

(12)

- (b) A company manufactures two products X and Y by using three machines A, B, and C. Machine A has 4 hours of capacity available during the coming week. Similarly, the available capacity of machines B and C during the coming week is 24 hours and 35 hours respectively. One unit of product X requires one hour of Machine A, 3 hours of machine B and 10 hours of machine C. Similarly one unit of product Y requires 1 hour, 8 hour and 7 hours of machine A, B and C respectively. When one unit of X is sold in the market, it yields a profit of Rs. 5/– per product and that of Y is Rs. 7/– per unit. Solve the problem by using graphical method to find the optimal product mix.

(8)

(c) Solve the following LPP by Two-Phase method:

$$\text{Minimize } 12.5x_1 + 14.5x_2$$

Subject to:

$$x_1 + x_2 \geq 2000$$

$$0.4x_1 + 0.75x_2 \geq 1000$$

$$0.075x_1 + 0.1x_2 \leq 200$$

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

(10)