

2 Attempt any four :

- (i) Use the graphical method to solve the following Linear Programming Problem:

Maximize objective function $Z = 3x_1 + 4x_2$

subject to $5x_1 + 4x_2 \leq 200$

$$3x_1 + 5x_2 \leq 150$$

$$5x_1 + 4x_2 \geq 100$$

$$8x_1 + 4x_2 \geq 80$$

$$x_1, x_2 \geq 0$$

- (ii) Explain Monte Carlo Simulation model in brief.
- (iii) Four different jobs can be done on four different machines. The below matrix gives the cost in rupees of producing job on each machine. Solve the assignment problem to minimize the cost.

Workers	Machines			
	M_1	M_2	M_3	M_4
W_1	5	7	11	6
W_2	8	5	9	6
W_3	4	7	10	7
W_4	10	4	8	3

- (iv) Obtain Optimum Solution for the following transportation problem, whose cost matrix is given below :

Origins	Destinations				Supply
	D_1	D_2	D_3	D_4	
O_1	6	1	9	3	70
O_2	11	5	2	8	55
O_3	10	12	4	7	70
Demand	85	35	50	45	

- (v) What do you mean by degeneracy in a transportation problem? What initiatives should be taken in order to remove the degeneracy? Explain it.

SECTION - II

- 3** Attempt any **two** : **16**
- (a) Explain the meaning of trade union. Also discuss reasons for the formation of trade union and also advantages of trade unions to workers and to the society.
 - (b) List out principles derived by Fedric Taylor and explain through suitable examples.
 - (c) Classify firms of co-operative undertaking according to the nature of services.
- 4** Attempt any **two** : **16**
- (a) Explain the meaning of co-ordination. Why it is treated as an essence? Also discuss importance of coordination in management.
 - (b) Explain the meaning of organisation. Also discuss various forms of organisation and how they are different from each other.
 - (c) List out principles derived by Henry Fayol and explain in brief.
- 5** Write short notes on any **three** : **18**
- (a) Causes of Industrial disputes
 - (b) Collective bargaining
 - (c) Features of scientific management
 - (d) Consolidated concept of management.
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