

MN10AAS

Time : 2 Hrs.

Marks : 30

- Note : 1) Attempt any three question.
 2) Graph papers are provided an request.
 3) Figures in the right indicate marks.

Q.1. a) Maximum $z = 4x + 5y$
 Subject to $3x + 2y \leq 60$
 $3x + 10y \leq 180$
 $x, y = 0$ (5)

b) Minimize $z = 9x + 5y$
 Subject to $2x + 5 \geq 6$
 $x + y \geq 5$
 $x, y = 0$ (5)

Q.2. a) Find IBFs by VAM. (5)

	P1	P2	P3	P4	Requirement
M1	19	14	23	11	11
M2	15	16	12	21	13
M3	30	25	16	39	19
Supply	6	10	11	15	

b) Solve by matrix - minima method. (5)

	W1	W2	W3	W4	
F1	8	10	7	6	50
F2	12	9	4	7	40
F3	9	11	10	8	30
Requirement	25	32	40	23	

Q.3. a) A nation truck retail service has surplus of one truck in each of cities 1, 2, 3, 4, 5, 6 of deficite of one truck in each of cities 7, 8, 9 10, 11, 12. The distance in km betn the cities with a surplus & the cities with deficite are as follows.(5)

	7	8	9	10	11	12
1	31	69	29	42	15	41
2	12	19	39	65	71	40
3	17	29	50	41	22	22
4	35	40	38	42	27	33
5	19	40	29	16	20	23
6	72	30	30	50	40	20

How should the truck be dispered so as to minimize the total distance.

b. Solve the following assignment problem. (5)

	I	II	III	IV	V
A	5	17	10	12	4
B	2	4	6	3	5
C	3	12	5	14	6
D	6	14	4	11	7
E	7	9	8	12	5

Q. 4. a) Two types of food packets A & B are available, Each contains vitamine N, N2. A person needs 4 decigram of N1 & 12 decigram of N2 per day. Food packet A contains 2 decigram of N1 & 4 decigram of N2. Food packet B contains 1 decigram of N1 & 4 decigram of N2. Food packet A & B costs Rs. 15 & Rs. 10 respectively formulate the above LPP which will minimize the cost. (5)

b) Solve the following transportation problem by North-West corner rule. (5)

	W1	W2	W3	W4	Availability
F1	11	20	7	18	80
F2	21	16	10	12	40
F3	8	12	18	9	70
Requirement	30	25	35	40	



	1	2	3	4	5	6
1	31	12	17	35	19	32
2	29	19	29	40	40	30
3	42	39	50	38	20	30
4	15	26	41	42	15	40
5	12	27	32	37	20	40
6	41	40	22	33	23	20