(i) Printed Pages : 4 Roll No. .....

(ii) Questions : 10 Sub. Code : 3817

Exam. Code : 0502

Master of Commerce 2nd Semester

(2053)

OPERATIONS RESEARCH (Same for USOL Candidates)

Paper : MC-205

Time Allowed : Three Hours] [Maximum Marks : 80

Note :— Attempt **five** questions in all, selecting **one** question from each unit.

UNIT—I

I. Discuss brieflyl the importance of operation Research in Decision making.

II. Solve the LPP :

$Z\ (Max) = 4x + 3y + 5z - 150$

subject to : $2x + 3y + 2z \leq 400$

$3x + 2y + 2z \leq 350$

$x + 4y + 2z \leq 300$

where $x, y \& z \geq 0$

III. Write the Dual :

Z (Max) = $x_1 + x_2$

sub to : $2x_1 + x_2 = 5$

$3x_1 - x_2 = 6$

where x_1, x_2 is unrestricted in sign.

UNIT—II

IV. Given the revenue and cost data below, obtain which product each plant should produce to maximise profits :

Sale revenue

(Product)

(Plant)	1	2	3	4
A	49	60	45	61
B	55	63	45	69
C	52	62	49	68
D	55	64	48	66

Production Cost

(Product)

(Plant)	1	2	3	4
A	30	40	33	45
B	35	28	31	37
C	32	29	32	41
D	27	42	29	37

V. Test the optimality of following transportation problem :

	Project-A	Project-B	Project-C	Plant capacity
Plant W	4 (56)	8	8	56
Plant X	16 (16)	24 (66)	16	82
Plant Y	8	16 (36)	24 (41)	77
Total Required	72	102	41	215 / 215

Total associated cost as per above allocations by NWCM is Rs. 3624.

UNIT—III

VI. Draw the network diagram & calculate floats.

Event	1-2	1-3	1-4	2-5	3-7	4-6	5-7	5-8	6-7	6-9	7-10	8-10	9-10
Duration (days)	10	8	9	8	16	7	7	6	7	5	12	13	15

VII. Differentiate between PERT & CPM.

VIII. Why does the problem of replacement arise ? What is individual and group replacement ? Which is economical ? Explain.

UNIT—IV

IX. Solve the following game, graphically :

B player

A player	1	2	3	4	5
1	–5	5	0	– 1	8
2	8	– 4	– 1	6	– 5

X. (a) Explain the advantages and limitation of simulation.

(b) Give the role of queuing theory in decision -making & discuss its applications.