Roll No. | | | | | | | | | | | | **Total No. of Pages : 04**

Total No. of Questions : 07

B.Com. (Sem.–3)

OPERATION RESEARCH

Subject Code : BCOP-304 (2011 Batch)

Paper ID : [B1127]

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and students has to attempt any FOUR questions.**

SECTION-A

l. Write briefly :

(a) Define Operations Research

(b) What do you understand by degeneracy in LPP?

(c) Briefly explain Hungrarian Assignment method.

(d) What is Critical Path? State the necessary conditions of Critical Path?

(e) Describe the Maximin and Minimax Principle of Game Theory.

(f) Define EOQ and discuss its assumptions.

(g) What are the applications of Sequencing Problem?

(h) What do you understand by Safety Stock?

(i) Discuss Primal Dual relationship.

(j) Distinguish between Free, Interfering and Independent floats.

SECTION-B

2. What is Linear Programming? Discuss the applications of Linear Programming.

3. Solve the following transportation problem for maximum profit.

	Per Unit Profit (Rs.)				
	Market				
		A	B	C	D
Warehouse	X	12	18	6	25
	Y	8	7	10	18
	Z	14	3	11	20

Availability at warehouses	Demand in the markets
X : 200 units	A : 180 units
Y : 500 units	B : 320 units
Z : 300 units	C : 100 units
	D : 400 units

4. What is the meaning and functions of inventory control? Discuss ABC analysis of inventory control.

5. Solve the following game using graphical Approach:

	B's'Strategy				
A's strategy		B1	B2	B3	B4
	A1	8	5	– 7	9
	A2	– 6	6	4	– 2

6. Find the sequence that minimizes the total elapsed time required (T) in completing the following jobs. Each job is processed in the order ABC. Also, calculate T.

Job	1	2	3	4	5	6	7
Machine A	10	8	12	6	9	11	9
Machine B	6	4	6	5	3	4	2
Machine C	8	7	5	9	10	6	5

7. (a) Draw a network corresponding to the following information.

   (b) Find the earliest and latest scheduling times of various activities.

   (c) Also obtain the total, interfering, free and independent floats for each of the activities.

Activity	Time (Days)
1-2	8
1-3	2
1-4	6
1-5	12
2-4	5
2-7	9
3-5	3
3-6	7
4-10	4
5-11	10
6-7	2
6-8	10

Table Conti.....

Activity	Time (Days)
7-10	12
8-9	3
8-10	6
9-12	8
10-12	18
10-14	9
11-12	7
11-14	4
12-13	11
13-14	4