

FACULTY OF ENGINEERING

B.E. 4/4 (M/P/AE) I – Semester (Old) Examination, November 2013

Subject : Operations Research

Time : 3 hours

Max. Marks : 75

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1. Write a note on pure strategy.
2. What is unbalanced assignment problem?
3. Define : a) Feasible region b) Infinity solution
4. Distinguish between slack, surplus and artificial variable.
5. Explain dominance rules.
6. What are the limitations of LPP?
7. How do you convert the unbalanced transportation problem into a balance one?
8. Define two person zero sum game.
9. List the characteristics of a queuing system.
10. Differentiate between regular simplex method and dual simplex method.

PART – B (50 Marks)

11. Solve the following game. Find the value of game for player A.

		Player B				
		1	2	3	4	5
Player A	1	10	81	32	43	93
	2	59	63	39	69	73
	3	71	20	5	27	84
	4	34	14	44	44	69

12. A manufacturing company purchases 9000 parts of a machine for its annual requirement, ordering one month usage at a time. Each part costs Rs.20. The ordering cost per order is Rs.15 and carrying charges are 15% of the average inventory per year. You have been assigned to suggest a more economical purchase policy for the company. What advice would you offer and how much would it save the company per year?
13. There are seven jobs, each of which has to go through the machines A and B in order AB. Processing time in hours is given as –

Job	1	2	3	4	5	6	7
Machine A	3	12	15	6	10	11	9
Machine B	8	10	10	6	12	1	3

Determine a sequence of these jobs that will minimize the total elapsed time T. Also find T and the idle time for machines A and B.