EASWARI ENGINEERING COLLEGE

DEPARTMENT OF MANAGEMENT STUDIES

BA 7206 – APPLIED OPERATIONS RESEARCH

Question Bank

Part A

1. Define a feasible solution.
2. Define optimal solution.
3. What is the difference between basic solution and basic feasible solution?
4. Define unbounded solution.
5. What are slack and surplus variables?
6. What is meant by optimality test in a LPP?
7. What are the methods used to solve an LPP involving artificial variables?
8. Define artificial variable
9. When does an LPP posses a pseudo-optimal solution?
10. What is degeneracy?
11. How to resolve degeneracy in a LPP?
12. Define dual of LPP.
13. State the characteristics of canonical form.
14. State the characteristics of standard form.
15. Define basic feasible solution
16. Define non-degenerate solution
17. Define degenerate solution
18. Write the general mathematical model of LPP in matrix form.
19. Define basic solution:
20. What do you understand by transportation problem?
21. Define feasible solution of a transportation problem.
22. Define basic feasible solution of a transportation problem.
23. Define degenerate basic feasible solution of a transportation problem.
24. Define the optimal solution to a T.P?
25. What is the purpose of MODI method?
26. What do you mean by degeneracy in a T.P?

27. Explain how degeneracy in a T.P may be resolved?
28. What do you mean by an unbalanced T.P?
29. What is an assignment problem? Give two applications?
30. What do you mean by an unbalanced assignment problem?
31. What is the objective of the travelling salesman problem?
32. How do you convert the maximization assignment problem in to a minimization one?
33. Give some applications of IPP?
34. Why not round off the optimum values instead of resorting to Integer Programming? Explain.
35. Write the mathematical formulation for transportation problem?
36. Write the mathematical formulation for assignment problem?
37. Write the mathematical formulation for travelling salesman problem?
38. What is the optimality test used while solving an Assignment Problem using Hungarian method?
39. How do you solve an A.P if the profit is to be maximized?
40. What do you mean by integer programming problem?
41. Define a pure integer programming problem?
42. Define a mixed integer programming problem?
43. Explain the need for integer programming.
44. What are the methods used in solving IPP?
45. What is the fractional part of $-\frac{2}{3}$
46. What is the fractional part of $\frac{-98}{19}$
47. Give some applications of IPP.
48. Why not round off the optimum values instead of resorting to integer programming? Explain.
49. Differentiate between pure and mixed IPP.
50. What is the other name for Gomory's constraint?
51. State the general integer programming problem?
52. Define a game.
53. Define a saddle point.

54. Define two-person zero sum game?
55. Define payoff.
56. Define value of the game.
57. What is meant by Maximin and Minimax?
58. When do you say a game is stable?
59. Define simulation. Why is it used?
60. Define random number.
61. Define pseudo-random number.
62. What are the advantages of simulation?
63. What are the limitations of simulation?
64. What are the uses of simulation?
65. What are the two types of decisions?
66. What are the different types of decision making situations?
67. What is Expected Monetary Value (EMV)
68. What is Expected Opportunity Loss (EOL)?
69. What is Expected Value of Perfect Information (EVPI)
70. What are the methods which are useful for decision making under uncertainty.
71. What are the two types of strategies?
72. Define 'a queue'.
73. What are the basic characteristics of a queuing system?
74. Explain customer's behaviour.
75. Explain queuing system.
76. Define transient and steady state
77. Define traffic intensity or utilization factor.
78. If the arrival rate follows Poisson distribution, what is the distribution followed by inter-arrival time?
79. Write Little's formula?
80. If the traffic intensity of M/M/1 system is given to be 0.76, find the % of time the system would be idle?
81. What is the utilisation factor under multi-server model?
82. What is the formula for P_n under (M/M/1: N/FCFS)?