2007 ANDHRA UNIVERSITY
III B.TECH II SEMESTER DEGREE EXAMINATION
B.TECH COMPUTER SCIENCE ENGINEERING
OPERATION RESEARCH

TIME : 3 HOUR
MARK : 70

FIRST QUESTION IS COMPULSORY

ANSWER ANY FOUR FROM THE REMAINING QUESTIONS

ALL QUESTIONS CARRY EQUAL MARKS

ANSWER ALL PARTS OF ANY QUESTION AT ONE PLACE

1. Write short notes on the following:

a) Min-Max Method

b) Graphical Method for solving a Linear Programming Problem.

c) Zero sum Game.

d) Explain the Duality in linear programming

e) Economic order Quantity (EOQ)

f) Explain North West corner rule.

g) State the Assignment problem.

2. a) Explain the characteristics of LP model.

b) Solve the following LP problem by using Simplex method:
Minimize : $z = 4x_1 + 4x_2 - x_3$
Subject to $2x_1 + x_2 = 10$
$-3x_1 + 2x_2 = 6$
$x_1 + x_2 = 0$
$x_1, x_2 = 0$
Solve using the dual complex method.

4. a) Explain the Transportation and Transhipment problems.

b) Given the following Transportation problem:
To A B C D Supply From
1 5 12 7 10 50
2 4 6 7 6 50
3 2 8 5 3 60
Demand 40 20 30 70

Find the initial solution by VAM method and optimum solution by MODI method.

5. a) Explain the Travelling Salesman Problem

b) A dispatcher presently has six taxicabs at different locations and five customers who have call for service. The mileage from each taxi's present location to each curstomer is Customer 1 2 3 4 5
Cab
A 7 2 4 10 7

B 5 1 5 6 6
C 8 7 6 5 5
D 2 5 2 4 5
E 3 3 5 8 4
F 6 2 4 3 4

Determine the optional assignment that will minimize the total mileage.

6. a) Explain the Critical Path method.

b) A project being planned involved the following activities:
Activity Predecessor Duration
A - 14
B A 21
C A 50
D B 14
E C,D 30
F E 10

Construct the network.
Determine expected project completion time.
Determine free slack and total slack.

7. a) Explain the Graphical Method for solving a Game.

b) Find the Optimal solution for the following game using Graphical method:

Player B
1 2 3 4 5

Player A 4 2 5 -6 6
7 -9 7 4 8

8. a) Explain the Integer Programming problem.

b) Explain the Branch and Bound Technique for solving an Integer Programming Problem