Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐☐   Total No. of Pages : 02

Total No. of Questions : 07

BCA (2009-2010 Batch) (Sem.–5)
OPERATION RESEARCH
Subject Code : BC-504
Paper ID : [B0222]

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 a student has to attempt any FOUR questions.**

SECTION-A

l.   **Write short notes on :**

a) What is Unbalanced Transportation Problem?

b) What are various advantages of Dynamic Programming?

c) Write Slack, Surplus and Artificial variable.

d) Define the term NWCM.

e) Write short note on Big-M method.

f) Define Duality in L.P. with example.

g) Define the term PERT in Network Analysis.

h) What are various possibilities for a solution in O.R.?

i) What is the relationship between Primal and Dual?

j) Give characteristics of O.R.

SECTION - B

2. What is meant by degeneracy in Transportation Problem? How degeneracy is resolved in such problems?

3. Define the term OR. Also explain various tools of O.R.

4. Use Two-Phase Simplex Method to Min. $Z = 7.5 X_1 - 3 X_2$

   Subject to : $3X_1 - X_2 - X_3 \geq 3$;
   $\qquad\quad X_1 - X_2 + X_3 \geq 2$;
   $\qquad\quad X_1, X_2, X_3 \geq 0$

5. A marketing manager wishes to allocate his annual advertising budget of Rs. 20,000 in two media A and B. The unit cost of a message in media A is Rs. 1000 and in media B is Rs. 1500. Media A is monthly magazine and not more than one insertion is desired in the issue. At least five message should appear in media B. The expected effective audience for one message in media A is 40,000 and for media B is 50,000. Formulate it and solve graphically.

6. What is an Integer Programming? Explain whether an Integer Programming Problem can be solved by rounding off the corresponding simplex solution.

7. What is decision making? Describe various symbols used in Decision Tree Diagram. Explain with suitable example.