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

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B.Com. (Professional) (2013 to 2019 Batch)   (Sem.–6)

OPERATION RESEARCH
Subject Code : BCOP-304
M.Code : 22016

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTIONS 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 have to attempt any FOUR questions.**

SECTION–A

1. **Answer briefly :**

   a. State two applications of linear programming model.

   b. What is meant by unbounded solution?

   c. Differentiate between PERT and CPM.

   d. Name five OR models.

   e. What are the advantages and disadvantages of carrying large inventories?

   f. What are the main objectives network analysis?

   g. What is an unbalanced transportation problem?

   h. Enlist various duality theorems.

   i. What is degeneracy in a transportation problem?

   j. Define Slack variables, surplus variables and artificial variables.

SECTION-B

2. Use simplex method to solve the following LP problem.

Max $Z = 6x_1 + 8x_2$

Subject to Constraints:

$2x_1 + 3x_2 \rfloor \quad 16$ and $4x_1 + 2x_2 \rfloor \quad 16$

3. Discuss in detail the scope of operation research.

4. Explain the following terms :

   a. Mixed strategy

   b. Pure strategy

   c. Payoff matrix

   d. Two person zero sum game

   e. Value of the game

5. What is meant by inventory? Explain how the order quantity is calculated using basic EOQ model?

6. A bank plans to open a single server drive in banking facility at a particular center. It is estimated that 28 customers will arrive each hour on an average. If, on an average, it requires 2 minutes to process a customer transaction, determine :

   a. The proportion of time the system will be idle.

   b. On the average how long the customer will have to wait before reaching the server?

7. Draw the network from the following activity and find the critical path and total project duration :

Activity	1-2	1-3	1-5	2-3	2-6	3-4	4-7	5-6	6-7
Duration	3	4	14	10	5	4	6	1	1

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.