

**Total No. of Pages : 02**

**Total No. of Questions : 18**

**B.Tech.(CSE/IT) (O.E. 2011 Onwards) (Sem.-6)**

# OPERATION RESEARCH

**Subject Code : IT-310**

**M.Code : 71554**

**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 **FIVE** questions carrying **FIVE** marks each and students have to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

## SECTION-A

**Explain the following :**

- 1) Discuss the advantages of O.R.
- 2) What is objective function?
- 3) Define Convex Set.
- 4) Surplus variable.
- 5) Find the feasible solution of the following transportation problem using North-West corner method.

## Warehouse

	<b>W<sub>1</sub></b>	<b>W<sub>2</sub></b>	<b>W<sub>3</sub></b>	<b>W<sub>4</sub></b>	<b>Supplies</b>
<b>F<sub>1</sub></b>	14	25	45	5	6
<b>F<sub>2</sub></b>	65	25	35	55	8
<b>F<sub>3</sub></b>	35	3	65	15	16
<b>Requirement</b>	4	7	6	13	30 / 30

- 6) Define Cell Evaluation.
- 7) Solve the game :

B				
A		I	II	III
	I	-2	15	-2
	II	-5	-6	-4
	III	-5	20	-8

- 8) Waiting line problem.
- 9) Queue Discipline.
- 10) Simulation

### SECTION-B

- 11) Discuss significance and scope of OR in Business and industry.
- 12) How Simplex method of solving a linear programming problem is better than graphic method?
- 13) Explain Hungarian Assignment Method.
- 14) Solve the following problem by NWCM.

Warehouse Factories	W <sub>1</sub>	W <sub>2</sub>	W <sub>3</sub>	W <sub>4</sub>	Capacity
F <sub>1</sub>	19	30	50	10	7
F <sub>2</sub>	70	30	40	60	9
F <sub>3</sub>	40	8	70	20	18
Requirement	5	8	7	14	34

- 15) Discuss various stages of decision making theory.

### SECTION-C

- 16) What is LPP? What are the assumption in formulating linear programming problem?
- 17) Given the following data, determine the least cost allocation of available machines to four jobs.

A	B	C	D
25	29	31	42
22	19	35	18
39	38	26	20
34	27	28	40

- 18) Explain the methods for solving a goal programming problem.

**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.**