Roll No. | | | | | | | | | | | | | 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

Paper ID : [A2642]

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. Operation Research.
2. Slack variables.
3. Node Diagram.
4. Simulation.
5. Matrix Terminology.
6. Dynamic Programming.
7. Probability.
8. Game models.
9. Idle time.
10. Dummy activity.

SECTION-B

11. Explain the application of simulation techniques to queuing problems.

12. Solve the following game problem and find the value :

		B		
A		6	4	3
		2	4	8

13. Explain the deterministic dynamic programming and probability dynamic programming.

14. Consider an inventory situation. If number of sales per day is Poisson with mean 5, then generate 30 days of sales by Monte Carlo Method.

15. Write a note on critical path, slack and float.

SECTION-C

16. Solve the following linear programming problem graphically :

Maximize $Z = 5X_1 + 4X_2$

Subject to $2X_1 - 4X_2 <= 1$

$2X_1 + 4X_2 >= 3$

$X_1, X_2 >= 0$

17. Discuss Monte Carlo simulation technique to queuing and inventory problems.

18. Explain application of simulation techniques to inventory problems.