00516

MANAGEMENT PROGRAMME

Term-End Examination

June, 2018

MS-051 : OPERATIONS RESEARCH

Time : 3 hours   *Maximum Marks : 100*

(Weightage 70%)

Note : (i) *Section A has six questions, each carrying 15 marks. Attempt any four questions from this section.*

(ii) *Section B is compulsory and carries 40 marks. Attempt both questions.*

(iii) *Use of calculator is permissible.*

SECTION - A

1. "Operations Research advocates a systems approach and is concerned with optimisation. It provides a quantitative analysis for decision making." Comment on the above statement.

2. What is a basic feasible solution of a transportation problem ? Mention the methods available for finding an initial basic feasible solution. Briefly discuss them.

3. Discuss the application of Dynamic programming in decision making. How is this different from Linear Programming ?

4. Describe the classification of Inventory as per the manufacturing, service and control aspects.

5. A TV repairman finds that the time spent on his jobs has an exponential distribution with mean 30 minutes. If he repairs sets on FCFS basis and if the arrival of sets is with an average of 10 per 8 hour day, what is the repairman's expected idle time each day ? Also obtain the average number of sets in the system.

6. The MTNL wants to know the minimum number of operators required to meet the followings daily requirement of the Sarai Telephone exchange.

Time of day	Minimum N^e of operators required
0200 - 0600	2
0600 - 1000	8
1000 - 1400	10
1400 - 1800	5
1800 - 2200	4
2200 - 0200	1

An operator is on duty continuously for eight hours from the time the duty starts. Formulate an LP model for the problem.

SECTION - B

7. Determine the solution of the following game :

Player B

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

8. Write short notes on **any three** of the following :

(a) Exponential Distribution

(b) FIFO and LIFO

(c) Economic Production Quantity Model

(d) Unbalanced transportation problem

(e) Minimax criteria of optimality