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Total No. of Questions : 07

MBA (Sem.-3)

APPLIED OPERATIONS RESEARCH

Subject Code : MB-301

M.Code : 49044

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. Write briefly :**

- a. Operations Research
- b. Duality
- c. Sensitivity Analysis
- d. Group Replacement
- e. Saddle Point
- f. Dominance
- g. Resource Leveling
- h. Inventory Control
- i. Decision Tree
- j. Research

SECTION-B

2. A firm is considering the replacement of a machine, whose cost price is Rs.12, 200, and its scrap value is Rs. 200. When should the machine be replaced? The maintenance cost is as follows :

Year	1	2	3	4	5	6	7	8
Running Cost Rs.	200	500	800	1200	1800	2500	3200	4000

3. Solve the following game problem :

	Player B				
		I	II	III	IV
Player A	I	20	15	12	35
	II	25	14	8	10
	III	40	2	10	5
	IV	-5	4	11	0

4. ABC company requires 40,000 units of a speedometer per year. The ordering, receiving and hauling cost is Rs. 3 per order, while inspection cost is Rs.12 per order. Further details are as follows: Interest cost of Rs. 6% per unit per year. Deterioration and obsolescence lost Rs.0.004 per unit per year. Storage cost Rs. 1000 per year for 50,000 units. Calculate the EOQ, Reorder Period, Number of orders per year and total variable cost of inventory.
5. Explain Resource Leveling with the help of suitable example.
6. A repairman is to be hired to repair machines that breakdown following a Poisson process with an average rate of four per hour, The cost of non-productive machine is Rs. 9 per hour. The company has the option of choosing either a fast repairman or a slow repairman. The fast repairman charges Rs. 6 per hour and will repair machines at an average rate of 7 per hour. The slow repairman charges Rs. 3 per hour and will repair machines at an average rate of 5 per hour. Which repairman should be hired?
7. Explain 'Decision Making' with the help of a suitable example.

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.