QP CODE: 24803627

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Reg No : .....

Name : .....

INTEGRATED MSC DEGREE EXAMINATION, JUNE 2024

Fifth Semester

INTEGRATED MSC BASIC SCIENCE-STATISTICS

CORE - IST5CR02 - OPERATIONS RESEARCH

2020 Admission Onwards

517D24ED

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. What are the objective of OR?
2. Define infeasible solution.
3. Briefly discuss standard form of an LPP.
4. Define Artificial variable.
5. Briefly discuss duality in linear programming problem.
6. What do you mean by no passing rule?
7. Briefly explain MODI method.
8. Briefly expalin hungarian method.
9. Describe continuous review of an order cycle.
10. Define the term optimum stratergy in game theory.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. What are the assumptions in linear programming ?
12. Define (i) objective function (ii) set of constraints.
13. Describe two phase method.
14. Formulate Travelling salesman problem as an AP.

15. Explain general transportation problem.

16. What are the common methods to obtain an initial basic feasible solution for a transportation problem? Give a stepwise procedure for one of them.

17. Explain how the slacks of the critical path are determined in PERT.

18. Explain various basic steps in CPM technique.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Explain the concepts of models and give the stepwise procedure of modelling.

20. Use Big M method to solve the LPP
Maximize $z = 3x_1 + 2x_2$ subject to the constraints
$$2x_1 + x_2 \leq 2$$
$$3x_1 + 4x_2 \geq 12$$
$$x_1, x_2 \geq 0$$

21. Explain Matrix minima method and also obtain initial basic feasible solution to the following transportation problem using Matrix minima method?

	D_1	D_2	**D_3**	**D_4**	**Supply**
O_1	3	1	7	4	300
O_2	2	6	5	9	400
O_3	8	3	3	2	500
Demand	250	350	400	200	

22. Desribe the EOQ concept.What are its limitations? Discuss.

(2×5=10 weightage)