

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER- V EXAMINATION-SUMMER 2023****Subject Code: 3152008****Date: 26/06/2023****Subject Name: Production Optimization Techniques****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

MARKS

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|------------|---|-----------|
| Q.1 | (a) What is modern approach for production management? | 03 |
| | (b) How does JIT differ than mass production approach? | 04 |
| | (c) 'Transportation is a special case of Linear Programming', Explain. | 07 |
| | | |
| Q.2 | (a) What is feasible solution? | 03 |
| | (b) List applications of optimization techniques. | 04 |
| | (c) Explain MODI method to solve Transportation Metrix. | 07 |
| | OR | |
| | (c) Compare Least Cost Method and North West Corner method for finding initial feasible solution in transportation theory with example. | 07 |
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| Q.3 | (a) What is alternative optimal solution? | 03 |
| | (b) What do you understand by opportunity cost? | 04 |
| | (c) The head of the computer center, wish to minimize the time required to develop application program. How should he solve it? | 07 |
| | OR | |
| Q.3 | (a) What is 'restriction' on allocation? | 03 |
| | (b) Describe VAM in detail. | 04 |
| | (c) Describe special case of assignment problem- 'Transshipment' in detail with example. | 07 |
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| Q.4 | (a) Which critical parameters are considered in North West Corner method? Justify your answer. | 03 |
| | (b) What is degeneracy in transportation problem? How should it be treated? | 04 |
| | (c) Write a brief note on decision making under certainty. | 07 |
| | OR | |
| Q.4 | (a) Write down the application of graphical method to solve linear programming. | 03 |
| | (b) Describe Hungarian method to solve assignment problem. | 04 |
| | (c) Write a brief note on decision making under risk. | 07 |
| | | |
| Q.5 | (a) Where does the Johnson's Algorithm apply? | 03 |
| | (b) Write a brief note on crashing of project. | 04 |
| | (c) Write the rules for network construction. | 07 |
| | OR | |
| Q.5 | (a) Define float and critical activity. | 03 |
| | (b) Explain SPT, FCFS, MWKR and MOPNR rules for priority. | 04 |
| | (c) Explain the Makespan finding using Johnson's algorithm, for 2 machines and assume 6 Jobs for flow shop scheduling. | 07 |
