

Quiz Grade: 80.0% (A)

Quiz Submission

Operations Research

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Course Information

Course Title: Operations Research
Course Code: ORE 267
Credit Hours: 3

Quiz Questions, Student Answers, and Correct Answers

Question 1 of 10

Multiple Choice Question

What is the main objective of Operations Research?

Available Options:

- (A) To minimize cost
- (B) To maximize profit

(C) To optimize resources ← STUDENT SELECTED ← CORRECT ANSWER

- (D) To improve efficiency

Student's Answer: Option C: To optimize resources

Correct Answer: Option C: To optimize resources

Question 2 of 10

Multiple Choice Question

Which of the following is NOT a common application of Operations Research?

Available Options:

- (A) Inventory management
- (B) Production planning

(C) Customer service ← STUDENT SELECTED ← CORRECT ANSWER

- (D) Transportation logistics

Student's Answer: Option C: Customer service

Correct Answer: Option C: Customer service

Question 3 of 10

Multiple Choice Question

What is the primary purpose of using mathematical models in Operations Research?

Available Options:

(A) To make the analysis more complex

(B) To make the analysis more accurate ← STUDENT SELECTED ← CORRECT ANSWER

(C) To make the analysis more confusing

(D) To make the analysis more time-consuming

Student's Answer: Option B: To make the analysis more accurate

Correct Answer: Option B: To make the analysis more accurate

Question 4 of 10

Multiple Choice Question

What is the main advantage of using simulation in Operations Research?

Available Options:

(A) It provides an exact solution

(B) It can handle complex systems ← STUDENT SELECTED ← CORRECT ANSWER

(C) It is less time-consuming

(D) It is less expensive

Student's Answer: Option B: It can handle complex systems

Correct Answer: Option B: It can handle complex systems

Question 5 of 10

Text Answer Question

What is the difference between deterministic and stochastic models in Operations Research?

Student's Answer:

Deterministic and stochastic models differ in how they treat uncertainty. A deterministic model assumes that all variables and data are known in advance and remain constant. As a result, using the same inputs will always produce the same outcome. A stochastic model, on the other hand, recognizes that some factors are uncertain or random. It incorporates probability into the analysis, meaning that the results may vary even when similar conditions are used. Example: Deterministic model: Developing a production plan when demand, production times, and costs are fixed and known. Stochastic model: Managing inventory when customer demand changes unpredictably and must be estimated using probability. Summary: Deterministic models are appropriate when conditions are predictable, whereas stochastic models are better suited for situations involving uncertainty and variability.

Correct Answer:

Deterministic models assume all inputs are known with certainty, while stochastic models account for uncertainty in inputs.

Question 6 of 10

Multiple Choice Question

What is the primary goal of linear programming?

Available Options:

(A) To find the optimal solution ← STUDENT SELECTED ← CORRECT ANSWER

(B) To find all possible solutions

(C) To find the worst-case scenario

(D) To find the most complex solution

Student's Answer: Option A: To find the optimal solution

Correct Answer: Option A: To find the optimal solution

Question 7 of 10

Multiple Choice Question

Which of the following is NOT a commonly used algorithm in Operations Research?

Available Options:

(A) Simplex method

(B) Greedy algorithm ← CORRECT ANSWER

(C) Genetic algorithm

(D) Hill climbing algorithm ← STUDENT SELECTED

Student's Answer: Option D: Hill climbing algorithm

Correct Answer: Option B: Greedy algorithm

Question 8 of 10

Text Answer Question

What is the main disadvantage of using heuristics in Operations Research?

Student's Answer:

A major drawback of using heuristics in Operations Research is that they do not guarantee the best or optimal solution. While heuristic methods can produce good solutions quickly, especially for large or complex problems, the results are only approximate. This means there is a possibility that a better solution exists, but the heuristic may not find it. Consequently, heuristics are often used when finding the exact optimal solution would require too much time or computational effort.

Correct Answer:

Heuristics may not always find the optimal solution and can lead to suboptimal results.

Question 9 of 10

Text Answer Question

In Operations Research, what is the purpose of sensitivity analysis?

Student's Answer:

In Operations Research, sensitivity analysis is used to examine how changes in key factors or assumptions affect the outcome of a model. It helps decision-makers understand how variations in variables such as costs, resources, or demand may influence the optimal solution. This allows organizations to assess risks, make adjustments, and determine how stable their decisions are under changing conditions.

Correct Answer:

Sensitivity analysis is used to assess how changes in parameters or inputs affect the optimal solution.

Question 10 of 10

Multiple Choice Question

Which of the following is NOT a common technique used in decision making in Operations Research?

Available Options:

(A) Decision trees

(B) Game theory

(C) Regression analysis ← STUDENT SELECTED ← CORRECT ANSWER

(D) Markov chains

Student's Answer: Option C: Regression analysis

Correct Answer: Option C: Regression analysis

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