MONASH University

FIT3158 Business decision modelling - S2 2022

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Grade	**0.80** out of 1.00 (**80**%)

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Question **1**

Correct

Mark 0.10 out of 0.10

Which of the following is true of "What if?" analysis?

a. "What if?" analysis is an efficient optimisation technique.

b. It is not very useful when working with non mathematical models.

c. "What if?" analysis is useful in creating a well-defined problem statement.

d. A well-designed spreadsheet facilitates "What if?" analysis. ✔

The correct answer is: A well-designed spreadsheet facilitates "What if?" analysis.

Question **2**

Correct

Mark 0.10 out of 0.10

When the objective function can increase without ever contacting a constraint, the LP model is said to be

a. multi-optimal.

b. unbounded. ✔

c. open ended.

d. infeasible.

The correct answer is: unbounded.

Question **3**

Correct

Mark 0.10 out of 0.10

The specification or description of the relationship between the dependent and independent variables is generally called

- a. a constraint.
- b. a declaration.
- c. a mathematical model.
- d. a function. ✔

The correct answer is: a function.

Question **4**

Correct

Mark 0.10 out of 0.10

The symbols X_1, Z_1 , in a mathematical formulation of a decision problem are all examples of

- a. decision variables. ✔
- b. constraints.
- c. objectives.
- d. parameters.

The correct answer is: decision variables.

Question **5**

Incorrect

Mark 0.00 out of 0.10

What is the goal in optimisation?

- a. All the answer choices are correct.
- b. Find the best decision variable values that satisfy all constraints.
- c. Find the values of the decision variables that satisfy all constraints. ✖
- d. Find the values of the decision variables that use all available resources.

The correct answer is: Find the best decision variable values that satisfy all constraints.

Question **6**

Correct

Mark 0.10 out of 0.10

Which of the following fields of management science finds the optimal method of using resources to achieve the objectives of a business?

- a. Discriminant analysis

b. Simulation

c. Mathematical programming ✔

d. Regression

The correct answer is: Mathematical programming

Question 7

Correct

Mark 0.10 out of 0.10

When do alternate optimal solutions occur in LP models?

a. When a constraint is perpendicular to a level curve.

b. Alternate optimal solutions indicate an infeasible condition.

c. When a constraint is parallel to a level curve. ✔

d. When a constraint is parallel to another constraint.

The correct answer is: When a constraint is parallel to a level curve.

Question 8

Correct

Mark 0.10 out of 0.10

A common objective in a product mix problem is

a. minimizing cost. ✔

b. maximizing cost.

c. maximizing production volume.

d. minimizing production time.

The correct answer is: minimizing cost.

Question 9

Correct

Mark 0.10 out of 0.10

What are the three common elements of an optimization problem?

a. objectives, resources, goals.

b. decision variables, profit levels, costs.

c. decision variables, constraints, an objective. ✔

d. decision variables, resource requirements, a profit function.

The correct answer is: decision variables, constraints, an objective.

Question **10**

Incorrect

Mark 0.00 out of 0.10

The first step in formulating a linear programming problem is

a. Stating the objective function as a linear combination of the decision variables.

b. Identify any upper or lower bounds on the decision variables.

c. Understanding the problem.

d. Identifying the decision variables. ✖

e. Stating the constraints as linear combinations of the decision variables.

The correct answer is: Understanding the problem.

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