Chapter 1 - Introduction to Modeling

True / False

1. Models that suggest a desirable course of action are called descriptive models
    a. True
    b. False

ANSWER:	False
POINTS:	1
DIFFICULTY:	Easy
	Easy |Bloom's Knowledge
	Easy |Bloom's Comprehension
QUESTION TYPE:	True / False
HAS VARIABLES:	False
TOPICS:	1.1 Introduction
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2. In modeling situations where it is not possible to write an equation for an output in terms of the inputs, there may still be a mathematical procedure for calculating outputs from inputs.
    a. True
    b. False

ANSWER:	True
POINTS:	1
DIFFICULTY:	Easy
	Easy |Bloom's Knowledge
	Easy |Bloom's Comprehension
QUESTION TYPE:	True / False
HAS VARIABLES:	False
TOPICS:	1.1 Introduction
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3. In a descriptive model, the manager first wants to build a model that reflects the current situation.
    a. True
    b. False

ANSWER:	True
POINTS:	1
DIFFICULTY:	Moderate
	Moderate |Bloom's Knowledge
	Moderate |Bloom's Comprehension
QUESTION TYPE:	True / False
HAS VARIABLES:	False
TOPICS:	1.4 A Seven Step Modeling Process - Step 4 Model Verification
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4. One of the advantages of spreadsheet models is that they allow managers to ask what-if questions.
    a. True
    b. False

ANSWER:	True
POINTS:	1
DIFFICULTY:	Easy
	Easy |Bloom's Knowledge
	Easy |Bloom's Comprehension
QUESTION TYPE:	True / False
HAS VARIABLES:	False
TOPICS:	1.2 A Capital Budgeting Example - An Optimization Model
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5. One of the arguments that management science practitioners have used to criticize the emphasis on specific models is that they do not provide the correct answer.
    a. True
    b. False

ANSWER:	False
POINTS:	1
DIFFICULTY:	Easy
	Easy |Bloom's Knowledge
	Easy |Bloom's Comprehension
QUESTION TYPE:	True / False
HAS VARIABLES:	False
TOPICS:	1.3 Modeling Versus Models
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6. The overall modeling process typically done in practice always requires seven steps: define the problem, collect and summarize data, develop a model, verify the model, select one or more suitable decisions, present the results to the organization, and finally implement the model and update it through time.
    a. True
    b. False

ANSWER:	False
POINTS:	1
DIFFICULTY:	Easy
	Easy |Bloom's Knowledge
	Easy |Bloom's Comprehension
QUESTION TYPE:	True / False
HAS VARIABLES:	False

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7. Modeling is a process where the essence of a theoretical problem is extracted into a model, spreadsheet or otherwise.
    a. True
    b. False

ANSWER:	False
POINTS:	1
DIFFICULTY:	Easy Easy |Bloom's Knowledge Easy |Bloom's Comprehension
QUESTION TYPE:	True / False
HAS VARIABLES:	False
TOPICS:	1.4 A Seven Step Modeling Process - Step 1 Problem Definition
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8. In some applications, an analyst might present several alternative solutions from a model, and let the organization choose the best one.
    a. True
    b. False

ANSWER:	True
POINTS:	1
DIFFICULTY:	Moderate Moderate |Bloom's Knowledge Moderate |Bloom's Comprehension
QUESTION TYPE:	True / False
HAS VARIABLES:	False
TOPICS:	1.4 A Seven Step Modeling Process - Step 3 Model Development
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9. A management science model is typically initiated when an organization believes it has a problem.
    a. True
    b. False

ANSWER:	True
POINTS:	1
DIFFICULTY:	Moderate Moderate |Bloom's Knowledge Moderate |Bloom's Comprehension
QUESTION TYPE:	True / False

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HAS VARIABLES:	False
TOPICS:	1.4 A Seven Step Modeling Process - Step 4 Model Verification
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10. Data are often not in the required form, in which case it is the analysts' job to gather the right data and put it into an appropriate format.
    a. True
    b. False

ANSWER:	True
POINTS:	1
DIFFICULTY:	Moderate
	Moderate |Bloom's Knowledge
	Moderate |Bloom's Comprehension
QUESTION TYPE:	True / False
HAS VARIABLES:	False
TOPICS:	1.4 A Seven Step Modeling Process - Step 3 Model Development
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11. A good model should achieve the right balance between being too simple and too complex.
    a. True
    b. False

ANSWER:	True
POINTS:	1
DIFFICULTY:	Moderate
	Moderate |Bloom's Knowledge
	Moderate |Bloom's Comprehension
QUESTION TYPE:	True / False
HAS VARIABLES:	False
TOPICS:	1.4 A Seven Step Modeling Process - Step 4 Model Verification
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12. Verification is typically the most difficult phase of the modeling process, from a mathematical perspective.
    a. True
    b. False

ANSWER:	False
POINTS:	1
DIFFICULTY:	Easy
	Easy |Bloom's Knowledge
	Easy |Bloom's Comprehension

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QUESTION TYPE:	True / False
HAS VARIABLES:	False
TOPICS:	1.4 A Seven Step Modeling Process - Step 5 Optimization and Decision Making
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13. As models become larger and more complex, heuristic solutions are often adequate, even though they are not necessarily optimal solutions.
    a. True
    b. False

ANSWER:	True
POINTS:	1
DIFFICULTY:	Moderate
	Moderate |Bloom's Knowledge
	Moderate |Bloom's Comprehension
QUESTION TYPE:	True / False
HAS VARIABLES:	False
TOPICS:	1.4 A Seven Step Modeling Process - Step 7 Model Implementation
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14. The best strategy for implementation of a model is to involve key people in the organization in the project when the model is ready for testing and verification.
    a. True
    b. False

ANSWER:	False
POINTS:	1
DIFFICULTY:	Moderate
	Moderate |Bloom's Knowledge
	Moderate |Bloom's Comprehension
QUESTION TYPE:	True / False
HAS VARIABLES:	False
TOPICS:	1.4 A Seven Step Modeling Process - Step 7 Model Implementation
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15. A completed model typically marks the end of the modeling process.
    a. True
    b. False

ANSWER:	False
POINTS:	1
DIFFICULTY:	Easy

	Easy |Bloom's Knowledge
	Easy |Bloom's Comprehension
QUESTION TYPE:	True / False
HAS VARIABLES:	False
TOPICS:	1.6 Why Study Management Science?
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Multiple Choice

16. Which of the following is a type of model that is key to virtually every management science application?
    a. Heuristic model
    b. Queuing model
    c. Mathematical model
    d. Regression model

ANSWER:	c
POINTS:	1
DIFFICULTY:	Easy
	Easy |Bloom's Knowledge
	Easy |Bloom's Comprehension
QUESTION TYPE:	Multiple Choice
HAS VARIABLES:	False
TOPICS:	1.2 A Capital Budgeting Example - A Descriptive Model
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17. Which of the following is _not_ one of advantages of mathematical models?
    a. Mathematical models enable managers to understand the problem better
    b. Mathematical models allow analysts to employ a variety of mathematical solution procedures
    c. The mathematical modeling process itself, if done correctly, often helps "sell" the solution
    d. Mathematical models help reduce the cost of obtaining a solution

ANSWER:	d
POINTS:	1
DIFFICULTY:	Easy
	Easy |Bloom's Knowledge
	Easy |Bloom's Comprehension
QUESTION TYPE:	Multiple Choice
HAS VARIABLES:	False
TOPICS:	1.4 A Seven Step Modeling Process - Step 3 Model Development
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18. Before trusting the answers to what-if scenarios from a spreadsheet model, a manager should attempt to:

    a. validate the model

    b. make sure all possible scenarios have been investigated

    c. check the mathematics in the model

    d. sense-check the model

ANSWER:	a
POINTS:	1
DIFFICULTY:	Easy
	Easy |Bloom's Knowledge
	Easy |Bloom's Comprehension
QUESTION TYPE:	Multiple Choice
HAS VARIABLES:	False
TOPICS:	1.2 A Capital Budgeting Example - A Descriptive Model
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19. Optimization models are useful for determining:

    a. sensitivity to inputs

    b. whether the inputs are valid or not

    c. what the manager should do

    d. the value of the output under the current conditions

ANSWER:	c
POINTS:	1
DIFFICULTY:	Easy
	Easy |Bloom's Knowledge
	Easy |Bloom's Comprehension
QUESTION TYPE:	Multiple Choice
HAS VARIABLES:	False
TOPICS:	1.4 A Seven Step Modeling Process - The Model as a Beginning, Not an End
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20. Management science has often been taught as a collection of:

    a. theories

    b. problems

    c. models

    d. topics

ANSWER:	c
POINTS:	1
DIFFICULTY:	Easy
	Easy |Bloom's Knowledge
	Easy |Bloom's Comprehension
QUESTION TYPE:	Multiple Choice

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HAS VARIABLES:	False
TOPICS:	1.6 Why Study Management Science?
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21. The primary difference between management science and business analytics is
    a. management science is quantitative and business analytics is qualitative.
    b. business analytics uses more current quantitative methods.
    c. business analytics uses big data to solve business problems and provide insights.
    d. business analytics is a subset of management science.

ANSWER:	c
POINTS:	1
DIFFICULTY:	Moderate
	Moderate |Bloom's Knowledge
	Moderate |Bloom's Comprehension
QUESTION TYPE:	Multiple Choice
HAS VARIABLES:	False
TOPICS:	1.4 A Seven Step Modeling Process
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22. Defining an organization's problem includes:
    a. specifying the organization's objectives
    b. collecting the organization's historical data
    c. defining the model of the problem
    d. sensitivity analysis

ANSWER:	a
POINTS:	1
DIFFICULTY:	Easy
	Easy |Bloom's Knowledge
	Easy |Bloom's Comprehension
QUESTION TYPE:	Multiple Choice
HAS VARIABLES:	False
TOPICS:	1.3 Modeling Versus Models
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23. Which of the following type of model is used when inputs are modeled with probability distributions?
    a. Simulation model
    b. Deterministic model
    c. Heuristic model
    d. Spreadsheet model

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ANSWER:	a
POINTS:	1
DIFFICULTY:	Easy
	Easy |Bloom's Knowledge
	Easy |Bloom's Comprehension
QUESTION TYPE:	Multiple Choice
HAS VARIABLES:	False
TOPICS:	1.4 A Seven Step Modeling Process - Step 5 Optimization and Decision Making
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24. A first step in determining how well a model fits reality is to:
    a. check whether the inputs are correct
    b. see if the sensitivity analysis is correct
    c. check whether the model is valid for the current situation
    d. try some what-if scenarios to see if the model is able to obtain solutions

ANSWER:	c
POINTS:	1
DIFFICULTY:	Easy
	Easy |Bloom's Knowledge
	Easy |Bloom's Comprehension
QUESTION TYPE:	Multiple Choice
HAS VARIABLES:	False
TOPICS:	1.4 A Seven Step Modeling Process - Step 1 Problem Definition
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25. Which of the following is *not* necessarily a property of a good model?
    a. The model represents the client's real problem accurately
    b. The model is as simple as possible
    c. The model is based on a well-known algorithm
    d. The model is one the client can understand

ANSWER:	c
POINTS:	1
DIFFICULTY:	Easy
	Easy |Bloom's Knowledge
	Easy |Bloom's Comprehension
QUESTION TYPE:	Multiple Choice
HAS VARIABLES:	False
TOPICS:	1.4 A Seven Step Modeling Process - Step 2 Data Collection
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26. Which of the following is a possible cause if a model's outputs for certain inputs are not as expected?
    a. The certain inputs may not be correct
    b. The model could be too detailed of an approximation of the actual situation
    c. The mathematics in the model are inadequate
    d. The analyst's expectations are not correct

ANSWER:	d
POINTS:	1
DIFFICULTY:	Easy
	Easy |Bloom's Knowledge
	Easy |Bloom's Comprehension
QUESTION TYPE:	Multiple Choice
HAS VARIABLES:	False
TOPICS:	1.4 A Seven Step Modeling Process - Step 3 Model Development
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27. Which of the following is *not* one of the guiding principles for a heuristic?
    a. Common sense
    b. Intuition
    c. Trial and error
    d. Optimality

ANSWER:	d
POINTS:	1
DIFFICULTY:	Moderate
	Moderate |Bloom's Knowledge
	Moderate |Bloom's Comprehension
QUESTION TYPE:	Multiple Choice
HAS VARIABLES:	False
TOPICS:	1.4 A Seven Step Modeling Process - Step 4 Model Verification
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28. Which of the following is *not* one of the desired conditions for a successful model implementation?
    a. The people who will run the model understand how to enter appropriate inputs
    b. The people who will run the model are able to run what-if analysis
    c. The people who will run the model are able to modify it
    d. The people who will run the model are able to interpret the model's outputs correctly

ANSWER:	c
POINTS:	1
DIFFICULTY:	Easy
	Easy |Bloom's Knowledge
	Easy |Bloom's Comprehension

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QUESTION TYPE:	Multiple Choice
HAS VARIABLES:	False
TOPICS:	1.4 A Seven Step Modeling Process - Step 5 Optimization and Decision Making
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29. The most frequent cause of a failed implementation of a model is:
    a. the model is incorrect
    b. the analyst fails to communicate how to use the model
    c. the data for the model is unavailable
    d. the model is too complex

ANSWER:	b
POINTS:	1
DIFFICULTY:	Moderate
	Moderate |Bloom's Knowledge
	Moderate |Bloom's Comprehension
QUESTION TYPE:	Multiple Choice
HAS VARIABLES:	False
TOPICS:	1.4 A Seven Step Modeling Process - Step 6 Model Communication to Management
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30. Which of the following is *not* one of the reasons for the new-found relevance of management science models?
    a. Modeling is an important way to think about problems in general
    b. Modeling is often now a legal requirement
    c. The business world is increasingly driven by numbers
    d. Modeling helps develop intuition for problems

ANSWER:	b
POINTS:	1
DIFFICULTY:	Easy
	Easy |Bloom's Knowledge
	Easy |Bloom's Comprehension
QUESTION TYPE:	Multiple Choice
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TOPICS:	1.4 A Seven Step Modeling Process - Step 7 Model Implementation
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