Name:_____ Class:_____ Date:_____

Chapter 01

1. The essence of decision analysis is:
   a. breaking down complex situations into manageable elements.
   b. choosing the best course of action among alternatives.
   c. finding the root cause of why something has gone wrong.
   d. thinking ahead to avoid negative consequences.

ANSWER: b

2. Why would someone wish to use a spreadsheet model?
   a. To implement a computer model.
   b. Because spreadsheets are convenient.
   c. To analyze decision alternatives.
   d. All of these.

ANSWER: d

3. Which of the following fields of study is defined in Chapter One as the one that "uses computers, statistics, and mathematics to solve business problems"?
   a. Accounting
   b. Information systems
   c. Business analytics
   d. Scientific management

ANSWER: c

4. In a decision-making problem, anchoring effects occur when
   a. decision makers are tied too closely to previous decisions.
   b. organizations refuse to consider new alternatives.
   c. a seemingly trivial factor serves as a starting point for estimations.
   d. a person in a position of authority exerts his or her opinion very forcefully.

ANSWER: c

5. Virtually everyone who uses a spreadsheet today for model building and decision making
   a. is a practitioner of business analytics.
   b. possesses an advanced knowledge of mathematics and computer programming languages.
   c. is a CPA.
   d. is in a position to influence decision makers.

ANSWER: a

6. Which of the following statements is true of using models in problem solving and decision analysis?
   a. It is a fairly new idea.
   b. It is required in order to find good solutions.
   c. It is something everyone has done before.
   d. It is tied to the use of computers.

ANSWER: c

7. A road map is an example of

a. a mathematical model.
b. a mental model.
c. a physical model.
d. a visual model.

ANSWER: d

8. The textbook figure of the problem-solving process is an example of a
a. mental model.
b. prescriptive model.
c. graphical model.
d. visual model.

ANSWER: d

9. Which of the following is most likely to be used when faced with the decision of how to arrange furniture in a room?
a. Mathematical model
b. Mental model
c. Physical model
d. Visual model

ANSWER: b

10. To illustrate how a complex system will be built, an engineer will likely use a
a. mathematical model.
b. mental model.
c. physical model.
d. visual model.

ANSWER: d

11. Which of the following is the type of model used throughout this textbook?
a. Mathematical model
b. Mental model
c. Physical model
d. Visual model

ANSWER: a

12. The best models
a. accurately reflect relevant characteristics of the real-world object or decision.
b. are mathematical models.
c. replicate all aspects of the real-world object or decision.
d. replicate the characteristics of a component in isolation from the rest of the system.

ANSWER: a

13. A mathematical model is considered to be "valid" when
a. it accurately represents the relevant characteristics of the object or decision.
b. it has passed a validation test.

c. it replicates all aspects of the object or decision.
d. the left-hand and right-hand sides of expressions are equal.

ANSWER: a

14. All of the following are benefits of modeling except:
a. Modeling delivers needed information on a more timely basis.
b. Modeling finds the right answers to incorrect or flawed problem statements.
c. Modeling is helpful in examining things that would be impossible to do in reality.
d. Modeling is less expensive than implementing several alternative solutions.

ANSWER: b

15. Better decision making due to using a modeling process is achieved due to
a. the interaction with the spreadsheet.
b. the visualization of the system being studied.
c. the insight gained through the process.
d. the timeliness of the results obtained.

ANSWER: c

16. In this text we use the term "mathematics" to encompass

i. familiar elements of math such as algebra.
ii. logic.

a. i only
b. ii only
c. Both i and ii
d. Neither i nor ii

ANSWER: c

17. The specification or description of the relationship between the dependent and independent variables is generally called
a. a constraint.
b. a declaration.
c. a function.
d. a mathematical model.

ANSWER: c

18. Variables are termed independent when they satisfy which of the following?
a. The function value depends upon their values.
b. The decision maker has no control over them.
c. The variables have no relationship to one another.
d. The variable is described as an output of the spreadsheet model.

ANSWER: a

19. In the following expression, which is (are) the dependent variable(s)?

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PROFIT = REVENUE − EXPENSES

a. Profit
b. Revenue
c. Expenses
d. (b) and (c)

ANSWER: a

20. In a spreadsheet, input cells correspond conceptually to

a. dependent variables.
b. functions.
c. independent variables.
d. output cells.

ANSWER: c

21. The categories of modeling techniques presented in this book include all of the following except:

a. descriptive models.
b. predictive models.
c. prescriptive models.
d. preventive models.

ANSWER: d

22. Consider the spreadsheet model shown in the figure below. This is an example of a

	A	B	C
1			
2			
3	Purchase price	$32,500	
4	less:		
5	Down payment	$ 6,500	
6	Trade-in	$ 4,000	
7	Amount financed	$22,000	
8			
9	Term of loan	5 years	
10			
11	Annual interest rate	11.25%	
12			
13	Monthly payment	$481.08	
14			

a. descriptive model.
b. predictive model.

c. prescriptive model.

d. preventive model.

ANSWER: c

23. Solutions to which of the following categories of modeling techniques indicate a course of action to the decision maker?

a. Descriptive models

b. Predictive models

c. Prescriptive models

d. Preventive models

ANSWER: c

24. In which of the following categories of modeling techniques do the independent variables have unknown or uncertain values or coefficients?

a. Descriptive models

b. Predictive models

c. Prescriptive models

d. Probabilistic models

ANSWER: a

25. In which of the following categories of modeling techniques are the specifications of the relationships between dependent and independent variables unknown or ill-defined?

a. Descriptive models

b. Open models

c. Predictive models

d. Prescriptive models

ANSWER: c

26. Which of the following categories of modeling techniques includes optimization techniques?

a. Capitalistic models

b. Descriptive models

c. Predictive models

d. Prescriptive models

ANSWER: d

27. Which of the following categories of modeling techniques addresses uncertainty in the values of the independent variables?

a. Descriptive models

b. Predictive models

c. Prescriptive models

d. Scale models

ANSWER: a

28. Which of the following categories of modeling techniques involves determining the value of a dependent variable based on specific values of independent variables?

a. Biased models.
b. Descriptive models.
c. Predictive models.
d. Prescriptive models.

ANSWER: c

29. To be effective, a modeler must
a. be an effective presenter of results.
b. collect the proper input data for the model.
c. understand how modeling fits into the problem-solving process.
d. apply the correct modeling technique.

ANSWER: c

30. Identifying the real problems faced by the decision maker
a. is not important since the decision maker has already defined the problem.
b. requires insight, some imagination, time and a good bit of detective work.
c. first requires a well-defined problem statement.
d. will lead to developing the best model.

ANSWER: b

31. The ultimate goal of the problem identification step of the problem-solving process is
a. collecting lots of information.
b. helping the decision maker realize there is a problem.
c. identifying the root problem or problems causing the mess.
d. convincing the decision maker the mess is really a problem that can be solved.

ANSWER: c

32. Which step of the problem-solving process is considered the most important?
a. Identify problem.
b. Analyze model.
c. Test results.
d. Implement solution.

ANSWER: a

33. Which of the following steps in the problem-solving process is most likely to incur resistance from people affected by the proposed solution?
a. Formulate model
b. Use model to analyze problem
c. Test results
d. Implement solution

ANSWER: d

34. There are a variety of problems a manager might face. While presenting and defending your approach, how would you complete this thought?

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Several different modeling techniques are available to solve managerial decision problems,

a. the wrong choice of modeling technique is a common source of implementation difficulties.
b. students should develop a strong preference and expertise in one technique so when faced with problems as managers they can formulate them as a model that can be solved by their favorite technique.
c. fundamental characteristics of the problem guide the selection of an appropriate modeling technique.
d. most problems faced by managers are fundamentally the same.

ANSWER: c

35. In which step of the problem-solving process is the main focus to generate and evaluate alternatives?

a. Identify problem
b. Formulate model
c. Use model to analyze problem
d. Test results

ANSWER: c

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

a. A well-designed spreadsheet facilitates "What if?" analysis.
b. It is not very useful when working with non mathematical models.
c. "What if?" analysis is an efficient optimization technique.
d. "What if?" analysis is useful in creating a well-defined problem statement.

ANSWER: a

37. Beneficial uses of the testing process include all of the following except:

a. double checking the validity the model.
b. finding that some important assumption has been left out of the model.
c. giving no new insights into the nature of the problem.
d. improving solutions after the implementation step.

ANSWER: d

38. Implementing solutions to problems involves people and change. Which of the following is a suggested approach to effectively implement solutions?

a. Decision-making authority centralized to those who have specialized training in decision making.
b. Involve anyone affected by the decision in all steps of the problem-solving process.
c. Making decisions according to majority vote.
d. More skillful communication of management decisions.

ANSWER: b

39. Which of the following problem-solving steps is often considered the most difficult?

a. Identify the problem.
b. Analyze the model.
c. Test results.
d. Implement the solution.

ANSWER: d

40. If we do not identify the correct problem, the best we can hope for is:
    a. wasted time and effort.
    b. useful experience in problem definition efforts.
    c. a descriptive model.
    d. the right answer to the wrong question.

ANSWER: d

41. Chapter One discussed all of the following except:
    a. how models of decision problems differ in a number of important characteristics.
    b. how spreadsheet modeling and analysis fit into the problem-solving process.
    c. how spreadsheet models of decision problems can be used to analyze the consequences of possible courses of action.
    d. how to implement a problem formulation as a spreadsheet model.

ANSWER: d

42. The Chapter One "The World of Business Analytics" case reading offers the CEO alternatives to start the OR/MS collaboration process. All the following are alternatives offered except:
    a. Require the OR/MS group to save their yearly salary in every study.
    b. Use OR/MS personnel as consultants.
    c. Hire some OR/MS professionals and give them a problem to work.
    d. Institute more participation from OR analysts.

ANSWER: a

43. The main point brought forward in the Chapter One "The World of Business Analytics" case reading is:
    a. At a cocktail party, it is more efficient to divide the dip into several bowls and place them around the room.
    b. Competitive rivalry between IS and OR/MS groups can be turned to advantage when tackling business process re-engineering projects.
    c. Information system analysts trained in management science can help turn ordinary information systems into money-saving decision-support systems.
    d. OR/MS professionals lack communication skills and tend to focus on "rigor without relevance".

ANSWER: c

44. Operations Research got its start
    a. during World War II.
    b. with the first Univac computers in the early 1950's.
    c. from roots in Operations Management.
    d. from Frederick Taylor's Scientific Management.

ANSWER: a

45. The Chapter One "The World of Business Analytics" case reading discusses the relationship between OR/MS and IS professionals. Which of the following statements is NOT true?
    a. OR/MS analysts need IS professionals' data for their models.
    b. OR/MS analysts need to take many of the IS customers.
    c. The IS professional cannot use OR/MS tools in their applications.

d. The IS tools can start to recommend solutions using OR/MS skills.

ANSWER: d

46. The goal of the modeling approach to problem solving is to
a. help individuals make good decisions.
b. ensure optimality of decisions.
c. determine a set of optimal decisions.
d. determine feasibility of decisions.

ANSWER: a

47. A situation when decision quality is good and the resulting outcome quality is good is referred to as
a. pure luck.
b. deserved success.
c. dumb luck.
d. poetic justice.

ANSWER: b

48. A factor that plays a role in determining whether a good or bad outcome occurs is called
a. luck.
b. intuition.
c. certainty.
d. predictability.

ANSWER: a

49. Consistently using a structured, model based process to make decisions
a. should produce good outcomes more frequently.
b. is less effective than making decisions in a haphazard manner.
c. is evidence that luck plays an important role in decision making.
d. always leads to well-deserved success in managerial decision making.

ANSWER: a

50. A purely rational decision maker should
a. consistently select the same alternative, regardless of how the problem is framed.
b. disregard the consequences of his/her choices.
c. always select optimal action.
d. allow emotions influence the decision.

ANSWER: a

51. Two of the effects associated with decision problems are:
a. anchoring and framing.
b. anchoring and loading.
c. framing and complacency.
d. anchoring and luck

ANSWER: a

52. Anchoring occurs when:
    a. a trivial factor is used as a starting point for estimations in a decision-making problem.
    b. a difficult factor is incorporated in a problem.
    c. an easy solution is obtained to a difficult problem.
    d. obtaining a solution is trivial.

ANSWER: a

53. Framing effect refers to:
    a. how a decision maker views the alternatives in a decision problem.
    b. how difficult the decision is.
    c. whether a software program can be used to obtain an optimal solution to a decision problem.
    d. how structured the decision problem is.

ANSWER: a

54. In a model $Y=f(x_1, x_2)$, Y is called:
    a. a dependent variable.
    b. an independent variable.
    c. a confounded variable.
    d. a convoluted variable.

ANSWER: a

55. In a model $Y=f(x_1, x_2)$, x_1 is called:
    a. an independent variable.
    b. a dependent variable.
    c. a confounded variable.
    d. a convoluted variable.

ANSWER: a

56. A valid model:
    a. accurately represents a decision problem being studied.
    b. produces an optimal solution.
    c. produces a good solution.
    d. produces a feasible solution.

ANSWER: a

57. In a decision-making framework presented in Chapter One, the term "poetic justice" refers to a situation when the following occur:
    a. Good decision quality and good outcome quality.
    b. Good decision quality and bad outcome quality.
    c. Bad decision quality and good outcome quality.
    d. Bad decision quality and bad outcome quality.

ANSWER: d

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58. A situation when decision quality is good and the resulting outcome quality is bad is referred to as
a. pure luck.
b. deserved success.
c. bad luck.
d. poetic justice.

ANSWER: c

59. A situation when decision quality is bad and the resulting outcome quality is bad is referred to as
a. pure luck.
b. deserved success.
c. bad luck.
d. poetic justice.

ANSWER: d

60. A situation when decision quality is bad and the resulting outcome quality is good is referred to as
a. dumb luck.
b. deserved success.
c. bad luck.
d. poetic justice.

ANSWER: a

61. In a decision-making framework presented in Chapter One, the term "dumb luck" refers to a situation when the following occur:
a. Good decision quality and good outcome quality.
b. Good decision quality and bad outcome quality.
c. Bad decision quality and good outcome quality.
d. Bad decision quality and bad outcome quality.

ANSWER: c

62. In a decision-making framework presented in Chapter One, the term "deserved success" refers to a situation when the following occur:
a. Good decision quality and good outcome quality.
b. Good decision quality and bad outcome quality.
c. Bad decision quality and good outcome quality.
d. Bad decision quality and bad outcome quality.

ANSWER: a

63. In a decision-making framework presented in Chapter One, the term "bad luck" refers to a situation when the following occur:
a. Good decision quality and good outcome quality.
b. Good decision quality and bad outcome quality.
c. Bad decision quality and good outcome quality.
d. Bad decision quality and bad outcome quality.

ANSWER: b

64. In which step of the problem-solving process is the concept of "probortunity" introduced?
    a. Identify problem
    b. Formulate model
    c. Use model to analyze problem
    d. Test results

ANSWER: a

65. In order to be useful to a decision-maker, decision problems need to be
    a. valid.
    b. analyzed.
    c. simplified.
    d. tested.

ANSWER: a

66. Business analytics focuses on
    a. identifying and leveraging business opportunities.
    b. formulating analytical models.
    c. using models to analyze problem.
    d. testing and implementing results.

ANSWER: a

67. Business opportunities can be viewed and formulated as
    a. decision problems.
    b. analytical models.
    c. empirical models.
    d. testing tools.

ANSWER: a

68. The notion that every problem is also an opportunity is reflected in the term
    a. probortunity.
    b. formulation.
    c. simulation.
    d. business opportunity.

ANSWER: a

69. In the textbook the words "opportunity" and "problem" are
    a. disjoint.
    b. used interchangeably.
    c. mutually exclusive.
    d. complementary.

ANSWER: b

70. The mathematical modeling approaches presented in the textbook

a. are a subset of the total problem-solving process.
b. cover the entire spectrum of decision support approaches.
c. are exhaustive.
d. are complementary.

ANSWER: a

71. The concept of "probortunity" is
a. the first step in the problem-solving process.
b. a decision support method.
c. part of testing results.
d. part of solution implementation.

ANSWER: a

72. If results testing produces unsatisfactory results
a. the problem-solving process requires new formulation and implementation.
b. minor adjustments to the existing model.
c. checking the solution algorithm.
d. repeated testing.

ANSWER: a

73. The proliferation of powerful PCs and the development of easy-to-use electronic spreadsheets have made the tools of business analytics far more practical and available to a much larger audience.
a. True
b. False

ANSWER: True

74. A mathematical model uses mathematical relationships to describe or represent an object or decision problem.
a. True
b. False

ANSWER: True

75. Because they simplify reality, models are generally not helpful in examining things that would be impossible to do in reality.
a. True
b. False

ANSWER: False

76. In spreadsheet modeling of a problem, there is no direct correspondence between mathematical equation and the spreadsheet.
a. True
b. False

ANSWER: False

77. Defining a problem well will often make it much easier to solve.

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a. True
b. False

ANSWER: True

78. Humans usually do not make errors in estimation due to anchoring and framing effects.
a. True
b. False

ANSWER: False

79. Good decisions always result in good outcomes.
a. True
b. False

ANSWER: False

80. OR/MS specialists do not deliver business value.
a. True
b. False

ANSWER: False