CHAPTER 1: Introduction to Data Analysis and Decision Making

MULTIPLE CHOICE

1. The decision-making concepts covered in *Data Analysis & Decision Making* book include which of the following?
   a. Optimization techniques
   b. Decision analysis with uncertainty
   c. Structured sensitivity analysis
   d. All of these options

   ANS: D PTS: 1 MSC: AACSB: Analytic

2. Which of the following statements is *not* true?
   a. Dealing with uncertainty includes measuring uncertainty
   b. Dealing with uncertainty includes modeling uncertainty explicitly into the analysis.
   c. Dealing with uncertainty includes eliminating uncertainty by using the normal probability distribution
   d. Uncertainty is a key aspect of most business problems, and dealing with uncertainty requires a basic understanding of probability

   ANS: C PTS: 1 MSC: AACSB: Analytic

3. Which of the following is *not* one of the important themes of your *Data Analysis & Decision Making* book?
   a. Data analysis
   b. Dealing with uncertainty
   c. Decision making
   d. Data mining

   ANS: D PTS: 1 MSC: AACSB: Analytic

4. Data analysis includes
   a. data description
   b. data inference
   c. the search for relationships in data
   d. All of these options

   ANS: D PTS: 1 MSC: AACSB: Analytic

5. Which of the following is *not* one of the steps in the modeling process?
   a. Select scale for model
   b. Collect and summarize data
   c. Verify the model
   d. Present the results
   e. Implement the model and update it through time

   ANS: A PTS: 1 MSC: AACSB: Analytic

6. Which of the following would *not* be included under data analysis?
   a. Measuring uncertainty
   b. Data description
   c. Data inference
   d. Search for relationships

   ANS: A PTS: 1 MSC: AACSB: Analytic

7. The decision making process includes
   a. optimization techniques for problems with no uncertainty
   b. decision analysis for problems with uncertainty

c. sensitivity analysis
d. All of the above

ANS: D PTS: 1 MSC: AACSB: Analytic

8. Which of the following is *not* one of the types of models described in *Data Analysis & Decision Making* book?
a. Algebraic model
b. Spreadsheet model
c. Scale model
d. Graphical model

ANS: C PTS: 1 MSC: AACSB: Analytic

9. The modeling process discussed in *Data Analysis & Decision Making* book is a
a. seven-step process
b. six-step process
c. five-step process
d. four-step process
e. three-step process

ANS: A PTS: 1 MSC: AACSB: Analytic

10. Which of the following is Excel add-in for performing what-if analyses?
a. PrecisionTree
b. TopRank
c. Solver
d. @Risk
e. StatTools

ANS: B PTS: 1 MSC: AACSB: Analytic

11. Which of the following statements are false?
a. The modeling process discussed in *Data Analysis & Decision Making* book is five- step process
b. Dealing with uncertainty requires a basic understanding of probability
c. Uncertainty is a key aspect of most business problems
d. Data description and data inference are included under data analysis

ANS: A PTS: 1 MSC: AACSB: Analytic

12. Which of the following statements are false?
a. Decision-making includes *optimization techniques* for problems with certainty, *decision analysis* for problems with certainty, and structured *sensitivity analysis*.
b. Graphical models can be very helpful for simple problems. For complex problems, however, graphical models usually fail to show the important elements of a problem and how they are related.
c. Dealing with uncertainty includes *measuring* uncertainty and *modeling* uncertainty explicitly into the analysis.
d. All of these options

ANS: C PTS: 1 MSC: AACSB: Analytic

13. Which of the following statements are true:
    a. A fairly recent alternative to algebraic modeling is spreadsheet modeling. Instead of relating various quantities with algebraic equations and inequalities, we relate them in a spreadsheet with cell formulas.
    b. Data are usually meaningless until they are analyzed for trends, patterns, relationships, and other useful information
    c. Algebraic models, by means of algebraic equations and inequalities, specify a set of relationships in a very precise way. Their main drawback is that they require an ability to work with abstract mathematical symbols.
    d. When we make inferences from data and search for relationships in data, or when we use decision trees to help make decisions, we must deal with uncertainty.
    e. All of these options

    ANS: E PTS: 1 MSC: AACSB: Analytic

14. Which of the following statements are true?
    a. Three important themes run through the book. Two of them are in the title: data analysis and decision making. The third is dealing with uncertainty.
    b. Data analysis includes data description, data inference, and the search for relationships in data
    c. Decision making includes optimization techniques for problems with no uncertainty, decision analysis for problems with uncertainty, and structured sensitivity analysis.
    d. Dealing with uncertainty includes measuring uncertainty and modeling uncertainty explicitly into the analysis.
    e. All of these options

    ANS: E PTS: 1 MSC: AACSB: Analytic

15. Which of the following is an Excel add-in for simulation?
    a. PrecisionTree
    b. TopRank
    c. Solver
    d. @Risk
    e. StatTools

    ANS: D PTS: 1 MSC: AACSB: Analytic

TRUE/FALSE

1. Data analysis includes data *description*, data *inference*, and the search for *relationships* in data.

   ANS: T PTS: 1 MSC: AACSB: Analytic

2. Decision-making includes *optimization techniques* for problems with certainty, *decision analysis* for problems with certainty, and structured *sensitivity analysis*.

   ANS: F PTS: 1 MSC: AACSB: Analytic

3. Dealing with uncertainty includes *measuring* uncertainty and *modeling* uncertainty explicitly into the analysis.

   ANS: F PTS: 1 MSC: AACSB: Analytic

4. The authors of *Data Analysis & Decision Making* book described three types of models: graphical models, algebraic models, and spreadsheet models.

   ANS: T PTS: 1 MSC: AACSB: Analytic

5. Graphical models are the least intuitive type of model. Its purpose is simply to provide enough quantitative details to enable us solve the problem of interest.

   ANS: F PTS: 1 MSC: AACSB: Analytic

6. Three important themes run through this book: data analysis, decision-making, and dealing with uncertainty.

   ANS: T PTS: 1 MSC: AACSB: Analytic

7. Graphical models can be very helpful for simple problems. For complex problems, however, graphical models usually fail to show the important elements of a problem and how they are related.

   ANS: F PTS: 1 MSC: AACSB: Analytic

8. The overall modeling process typically done in the business world always require seven steps: define the problem, collect and summarize data, formulate 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.

   ANS: F PTS: 1 MSC: AACSB: Analytic

9. Algebraic models, by means of algebraic equations and inequalities, specify a set of relationships in a very precise way. Their main drawback is that they require an ability to work with abstract mathematical symbols.

   ANS: T PTS: 1 MSC: AACSB: Analytic

10. Data are usually meaningless until they are analyzed for trends, patterns, relationships, and other useful information.

    ANS: T PTS: 1 MSC: AACSB: Analytic

11. A fairly recent alternative to algebraic modeling is spreadsheet modeling. Instead of relating various quantities with algebraic equations and inequalities, we relate them in a spreadsheet with cell formulas.

    ANS: T PTS: 1 MSC: AACSB: Analytic

12. When we use simulation models to help make decisions, we do not deal with uncertainty at all, since we often must make inferences from the simulated data.

    ANS: F PTS: 1 MSC: AACSB: Analytic

13. When we make inferences from data and search for relationships in data, or when we use decision trees to help make decisions, we must deal with uncertainty.

    ANS: T PTS: 1 MSC: AACSB: Analytic

14. The @Risk is Excel add-in that can be used to run replications of a simulation, keep track of outputs, create useful charts, and perform sensitivity analyses.

    ANS: T PTS: 1 MSC: AACSB: Analytic

15. Graphical models are probably the least intuitive and most quantitative type of model.

    ANS: F PTS: 1 MSC: AACSB: Analytic