Test Bank for Introduction to Management Science and Business Analytics 7th Edition by Hillier

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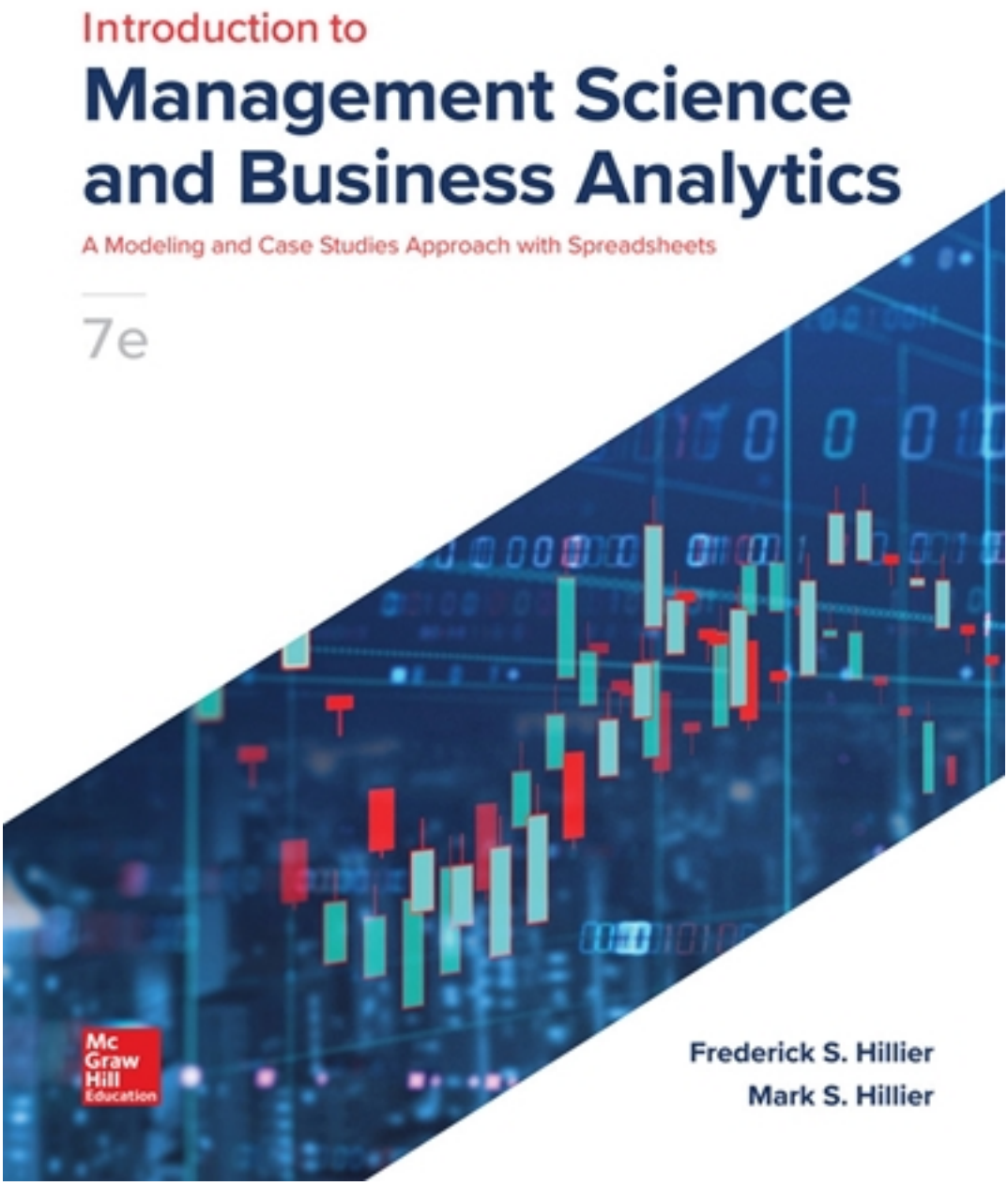

Test Bank

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CORRECT ANSWERS ARE LOCATED IN THE 2ND HALF OF THIS DOC.

TRUE/FALSE - Write 'T' if the statement is true and 'F' if the statement is false.

1) A study team generally expected to solve a problem and implement that solution.
   - ◎ true
   - ◎ false

2) In general, a study team presents recommendations to management.
   - ◎ true
   - ◎ false

3) In addition to presenting one or more possible solutions to management, a study team should also report the assumptions and trade-offs associated with each solution.
   - ◎ true
   - ◎ false

4) The final decision about a solution to a problem is made by the study team.
   - ◎ true
   - ◎ false

5) Prescriptive analytics projects involve more extensive problem definition than predictive analytics projects.
   - ◎ true
   - ◎ false

6) The best analytics objectives are limited to a small portion of the organization to ensure focus.
   - ◎ true
   - ◎ false

7) Descriptive analytics is the process of analyzing data to increase understanding of what has happened in the past.
   - ◎ true
   - ◎ false

8) Descriptive analytics is only applicable to a small subset of firms.
   - ◎ true
   - ◎ false

9) A data warehouse is the storage system used to display the results of a descriptive analytics project.
   - ◎ true
   - ◎ false

10) Before gathering data, a project team should have a clear definition of the study objectives and evaluation criteria.
    - ◎ true
    - ◎ false

11) Because of standardization, it is rare for a project team to encounter problems with data formatting.
    - ◎ true
    - ◎ false

12) A collection of data is referred to as a dataset.
    - ◎ true
    - ◎ false

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13) The data corresponding to an individual entity in a collection of data is known as a variable.
- ◎ true
- ◎ false

14) A description of the variables in a collection of data is known as a data dictionary.
- ◎ true
- ◎ false

15) All variables in a data set must be numbers.
- ◎ true
- ◎ false

16) Categorical variables can only take on a small number of possible values.
- ◎ true
- ◎ false

17) Data cleaning is a manual task that can only be completed by a human operator.
- ◎ true
- ◎ false

18) After cleaning the data, the next step in descriptive analytics is to explore the data to see what useful knowledge it may provide.
- ◎ true
- ◎ false

19) Data exploration often makes use of visual tools such as scatter plots and pie charts.
- ◎ true
- ◎ false

20) Relationships among three or more variables are often explored using a single correlation coefficient.
- ◎ true
- ◎ false

21) Sorting and filtering are two ways to conduct data exploration.
- ◎ true
- ◎ false

22) Descriptive analytics has the dual goals of data familiarization and communication.
- ◎ true
- ◎ false

23) Predictive analytics is focused on providing estimates of what is likely to happen in the future.
- ◎ true
- ◎ false

24) Predictive analytics is viewed as a three-step process.
- ◎ true
- ◎ false

25) Predictive analytics is often referred to as data mining.
- ◎ true
- ◎ false

26) Predictive analytics makes use of preexisting data models, also known as algorithms.
- ◎ true
- ◎ false

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27) The k-nearest neighbors algorithm (KNN) predicts a customer's actions based upon the actions of those who live in the house next door.
- ◎ true
- ◎ false

28) Predictive analytics uses two major categories of models – prediction models and classification models.
- ◎ true
- ◎ false

29) A prediction model uses data to predict a yes-or-no outcome.
- ◎ true
- ◎ false

30) A prediction model uses data to predict a numeric outcome.
- ◎ true
- ◎ false

31) Predictive analytics attempts to generate a prediction for an outcome variable.
- ◎ true
- ◎ false

32) Predictive analytics attempts to generate a prediction for an outcome variable by using a set of predictor variables as model inputs.
- ◎ true
- ◎ false

33) In predictive analytics, it is important to use the same data for model development, model testing and predictions.
- ◎ true
- ◎ false

34) In predictive analytics, a model that fits the data too precisely is exhibiting the undesirable trait known as overfitting.
- ◎ true
- ◎ false

35) In predictive analytics, a more complex model is always preferred to a simpler model.
- ◎ true
- ◎ false

36) One way to check if a model is overfitting is to partition the data into a training data set (to build the model) and a validation data set (to test the model).
- ◎ true
- ◎ false

37) Once a predictive analytics model is tested, the model development step is complete.
- ◎ true
- ◎ false

38) A lift chart shows the improvement offered by a model when compared to the previously determined best model.
- ◎ true
- ◎ false

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39) In predictive analytics, models are often tested and refined several times before being deemed satisfactory.
- ◎ true
- ◎ false

40) The final step in predictive analytics is implementation.
- ◎ true
- ◎ false

41) Prescriptive analytics involves the use of decision models to recommend a course of action.
- ◎ true
- ◎ false

42) Prescriptive analytics follows the same five-step process as predictive analytics.
- ◎ true
- ◎ false

43) Prescriptive analytics makes use of decision models.
- ◎ true
- ◎ false

44) Decision models determine the best values for the constraints to optimize the decision variables.
- ◎ true
- ◎ false

45) Decision models are used to try to find the best values for the decision variables.
- ◎ true
- ◎ false

46) Decision models represent reality in full detail, without the need for any assumptions or simplifications.
- ◎ true
- ◎ false

47) Decision models often are developed as simple models, but become more complex as additional factors are added.
- ◎ true
- ◎ false

48) A decision model is successful only if it fully solves the problem without error or simplification.
- ◎ true
- ◎ false

49) Optimizing and satisficing are the same concept.
- ◎ true
- ◎ false

50) What-if analysis is the process of determining how a decision model's output might change if certain inputs were different.
- ◎ true
- ◎ false

51) Testing of decision models involves determining if the model can find a reasonably valid solution to the original problem.
- ◎ true
- ◎ false

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52) Model validation can only be performed using historical data.
- ◎ true
- ◎ false

53) Once a model is validated it is ready for implementation.
- ◎ true
- ◎ false

54) Model implementation may involve a training period where users learn how to use the model and its outputs.
- ◎ true
- ◎ false

55) After model implementation, the project team should document the procedure management will need to apply the model.
- ◎ true
- ◎ false

MULTIPLE CHOICE - Choose the one alternative that best completes the statement or answers the question.

56) A study team normally
- A) consists of top-level managers.
- B) works in an advisory capacity.
- C) evaluates the study and its recommendations.
- D) solves a problem in the way they determine is best.
- E) All of the above.

57) A study team's first task is usually to
- A) gather relevant data.
- B) identify the key decision-makers.
- C) study the relevant system.
- D) present potential solutions to management.

58) Possible objectives for a decision model project include which of the following?
- A) Achieving satisfactory profits while satisfying other goals
- B) Maximizing long-run profits
- C) Maintaining stable profits
- D) Increasing market share
- E) All of the above

59) The first step in a descriptive analytics project is to
- A) gather and organize relevant data.
- B) clean the data.
- C) explore the data.
- D) communicate performance information using visualization.

60) A data warehouse is most likely to be used during which step of descriptive analytics?
- A) Gather and organize relevant data.
- B) Clean the data.
- C) Explore the data.
- D) Communicate performance information using visualization.

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61) A collection of data gathered for a descriptive analytics project is known as a
A) record.
B) variable.
C) outcome.
D) dataset.

62) Each entity (for example, a customer) in a dataset is represented with a
A) record.
B) variable.
C) outcome.
D) model.

63) For a descriptive analytics project, a variable such as profit would most likely be treated as a(n) _____ variable.
A) categorical
B) unknown
C) numerical
D) decision

64) For a descriptive analytics project, a variable such as nationality would most likely be treated as a(n) _____ variable.
A) categorical
B) unknown
C) numerical
D) decision

65) The process of correcting and reformatting data prior to data visualization is known as
A) data processing.
B) data cleaning.
C) data washing.
D) data management.

66) A common method of data cleaning is the ETL process, where ETL is an acronym for
A) Extra Time Loading.
B) Enhanced Topic Linking.
C) Experience, Training and Logic.
D) Extract, Transform, and Load.

67) One common means of exploring the data is the
A) Knowledge Discovery in Databases process.
B) Extract, Transform, and Load process.
C) Data Cleansing process.
D) Data Flagging process.

68) In the data exploring tasks, which of the following are commonly used techniques?
A) Calculation of performance metrics
B) Sorting of data
C) Filtering of data
D) Calculation of summary statistics
E) All of the above

69) During data exploration, a wide variety of data visualization tools are available. Which of the following is NOT a data visualization technique?
A) Scatter plots
B) Histograms
C) Summary statistics
D) Pie charts
E) All of the above are data visualization techniques

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70) Which of the following is(are) primary objective(s) of descriptive analytics?
1. Data familiarization
2. Data gathering
3. Communication

A) I only
B) II only
C) III only
D) I and II only
E) I and III only

71) Predictive analytics is also known as
A) data mining.
B) data cleaning.
C) data visualization.
D) data discovery.
E) prescriptive analytics.

72) In predictive analytics, the term "model" refers to
A) a small, physical representation of the data.
B) a systematic procedure for applying an algorithm.
C) a subset of the data.
D) a data visualization technique.
E) All of the above.

73) The major categories of models in predictive analytics are
1. Classification models
2. Prediction models
3. Descriptive models

A) I only
B) II only
C) III only
D) I and II only
E) I and III only

74) Which of the following statements about predictive analytics models is FALSE?
A) Predictive models are used to predict a numeric outcome
B) Classification models are used to predict a yes-or-no outcome
C) Estimating future sales would require a predictive model
D) Predicting a customer's negative response would require a classification model
E) A predictive model would be used to predict whether or not a student might fail a course

75) A predictive model uses _____ to estimate future values of a(n) _____ variable.
A) outcome variables, predictor
B) predictor variables, outcome
C) predictor variables, categorical
D) numeric variables, categorical
E) categorical variables, numeric

76) The predictive analytical technique that makes use of different datasets for model training and model validation is known as
A) overfitting.
B) regression analysis.
C) data cleaning.
D) partitioning.
E) randomness.

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77) The modeling goal for predictive analytics is to
A) effectively predict an outcome.
B) perfectly fit the historical data.
C) provide visualization of the historical data.
D) construct the simplest possible model.
E) describe the noise in the data.

78) During the validation of a predictive analytics model,
A) a training partition is used to fine-tune the model.
B) a validation partition is used to test the model's performance.
C) a validation partition is used to train the model.
D) a training partition is used to test the model's performance.
E) None of the above.

79) In predictive analytics, the test and refine step
A) makes use of tools such as confusion matrices and error reports.
B) generates metrics such as specificity and sensitivity.
C) may be repeated several times.
D) uses graphics such as lift charts.
E) All of the above.

80) A decision model
A) is used in prescriptive analytics.
B) is used in predictive analytics.
C) describes the relationship between two variables.
D) is used to determine which type of data visualization to employ.
E) is used during the data cleaning process.

81) Which of the following is true about decision models used in prescriptive analytics?
1. Decision models are expressed mathematically
2. Decisions to be made are represented with decision variables
3. The performance measure is called a constraint
A) I only
B) II only
C) III only
D) I and II only
E) I and III only

82) The most common type of decision model is the
A) linear discussion model.
B) linear regression model.
C) linear programming model.
D) classification model.
E) multiple regression model.

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83) In prescriptive analytics, the most common approach is to
A) start with a simple model and add features if needed.
B) start with a complex model and remove unneeded features later.
C) start with a simple model and avoid changes.
D) start with a complex model and avoid changes.
E) start with an intermediate model and add or remove features as needed.

84) In prescriptive analytics, a common goal is to identify an optimal solution, which is
A) a solution that isn't necessarily the best, but isn't the worst.
B) the best feasible solution.
C) a solution that is easy to implement.
D) the first solution identified.
E) the best infeasible solution.

85) Post-optimality analysis is used to identify and describe
A) alternate optimal solutions.
B) satisficing solutions.
C) possible implementation difficulties.
D) possible changes to the optimal solution under different conditions.
E) conditions that are likely to change in the real world.

86) In predictive analytics, model testing may involve
A) reviewing the process and models for errors.
B) comparing the problem definition with the model.
C) checking the plausibility of model output.
D) analyzing historical data to evaluate model performance.
E) All of the above.

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Answer Key

Test name: Chapter 02

1) FALSE
2) TRUE
3) TRUE
4) FALSE
5) TRUE
6) FALSE
7) TRUE
8) FALSE
9) FALSE
10) TRUE
11) FALSE
12) TRUE
13) FALSE
14) TRUE
15) FALSE
16) TRUE
17) FALSE
18) TRUE
19) TRUE
20) FALSE
21) TRUE
22) TRUE
23) TRUE
24) FALSE
25) TRUE
26) TRUE
27) FALSE
28) TRUE
29) FALSE
30) TRUE
31) TRUE
32) TRUE
33) FALSE
34) TRUE
35) FALSE
36) TRUE
37) FALSE
38) FALSE
39) TRUE
40) TRUE
41) TRUE
42) FALSE
43) TRUE
44) FALSE
45) TRUE
46) FALSE
47) TRUE
48) FALSE
49) FALSE
50) TRUE
51) TRUE
52) FALSE
53) FALSE
54) TRUE
55) FALSE
56) B
57) C
58) E
59) A
60) A
61) D
62) A
63) C
64) A
65) B
66) D
67) A
68) E
69) C
70) E
71) A
72) B
73) D
74) B
75) B
76) D

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77) A
78) B
79) E
80) A
81) D
82) C
83) A
84) B
85) D
86) E