**Chapter 13: Demand Forecasting Methods**

**Test Bank**

**Multiple Choice**

1. Which of the following is an example of a forecasted activity in tactical decision making?

a. new product development

b. sales and production planning

c. production scheduling

d. worker assignments

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-1. Demonstrate the importance of forecasting for business operations.

Answer Location: Table 13.1 Demand-Forecast Time Horizons of Business Activities

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

2. Product scheduling and worker assignments are examples of forecasted activities in \_\_\_\_\_\_ decision-making.

a. operational

b. tactical

c. strategic

d. functional

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-1. Demonstrate the importance of forecasting for business operations.

Answer Location: Table 13.1 Demand-Forecast Time Horizons of Business Activities

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

3. In order to be useful, demand forecasts should be \_\_\_\_\_\_.

a. consistent

b. complex

c. time-consuming

d. inaccurate

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-1. Demonstrate the importance of forecasting for business operations.

Answer Location: The Characteristics of Good Forecasts

Difficulty Level: Easy

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

4. Which of the following statements is FALSE about good forecasts?

a. They should be easy to interpret so that users have confidence in the forecasts.

b. The costs of preparing the forecasts should outweigh its benefits.

c. Any deviations from actual demand should be small.

d. They should be available within a reasonable timeframe.

Ans: B

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-1. Demonstrate the importance of forecasting for business operations.

Answer Location: The Characteristics of Good Forecasts

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

5. Which of the following is NOT a feature of a good forecast?

a. timely

b. complex

c. efficient

d. consistent

Ans: B

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-2. Recognize the characteristics of good forecasts.

Answer Location: The Characteristics of Good Forecasts

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

6. Which of the following statements is FALSE about good forecasts?

a. Short-term forecasts tend to be more accurate than long-term forecasts.

b. Aggregate forecasts for groups of products or services tend to be more accurate than forecasts for individual products.

c. The forecasts for dependent-demand items are more accurate than forecasts for independent-demand items.

d. Long-term forecasts tend to be more accurate than short-term forecasts.

Ans: D

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-2. Recognize the characteristics of good forecasts.

Answer Location: The Characteristics of Good Forecasts

Difficulty Level: Hard

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

7. \_\_\_\_\_\_ is a part or component of an end product whose demand depends on the demand for the end product.

a. Dependent demand item

b. Independent demand item

c. Variable demand item

d. Seasonal demand item

Ans: A

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-2. Recognize the characteristics of good forecasts.

Answer Location: The Characteristics of Good Forecasts

Difficulty Level: Easy

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

8. An end product is a(n) \_\_\_\_\_\_ whose demand is unrelated to the demand of any other product or item.

a. dependent demand item

b. independent demand item

c. variable demand item

d. seasonal demand item

Ans: B

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-2. Recognize the characteristics of good forecasts.

Answer Location: The Characteristics of Good Forecasts

Difficulty Level: Easy

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

9. The two broad categories of forecasting methods are \_\_\_\_\_\_

a. dependent and independent

b. time series and causal

c. qualitative and quantitative

d. time series and regression analysis

Ans: C

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Qualitative Versus Quantitative Forecasting Methods

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

10. Which of the following is an example of a qualitative method?

a. Delphi method

b. moving average

c. weighted moving average

d. linear trend analysis

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Table 13.2 Demand Forecasting Methods

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

11. Exponential smoothing and weighted moving average are examples of \_\_\_\_\_\_.

a. causal methods

b. qualitative methods

c. time series analysis

d. simulation methods

Ans: C

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Table 13.2 Demand Forecasting Methods

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

12. \_\_\_\_\_\_ methods are used when no measurable, reliable, historic, or statistical data are available and are primarily based on intuition, judgment, or informed opinions of experts in the industry.

a. Market research

b. Qualitative

c. Quantitative

d. Causal

Ans: B

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Qualitative Methods

Difficulty Level: Easy

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

13. \_\_\_\_\_\_ is a qualitative method that attempts to eliminate or minimize the problem of bias in the opinion of a single expert by using a panel of experts to generate forecasts.

a. Expert opinion

b. Sales force opinion

c. Market research

d. The Delphi method

Ans: D

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: The Delphi Method

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

14. \_\_\_\_\_\_ is used to forecast demand for a new product or service that is similar to existing products.

a. Market research

b. The Delphi method

c. A historical life-cycle analogy

d. A sales force opinion

Ans: C

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Historical Life-Cycle Analogy

Difficulty Level: Hard

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

15. One drawback of surveys is that they are \_\_\_\_\_\_.

a. time-consuming

b. inexpensive

c. necessary for a high response rate

d. efficient

Ans: A

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Market Research

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

16. \_\_\_\_\_\_ methods can be used if measurable, historical data are available, and there is evidence that past demand is indicative of the future demand.

a. Simulation analysis

b. Qualitative

c. Quantitative

d. Market research

Ans: C

Cognitive Domain: Application (Apply)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Quantitative Methods

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

17. Which of the following statements is true about quantitative methods?

a. They are appropriate for demand forecasting if there are causal relationships between explanatory variables.

b. They cannot be used for short or medium-to-intermediate timeframes.

c. They are used if measurable, historical data are not available.

d. They are inappropriate for demand forecasting if there are causal relationships between explanatory variables.

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Quantitative Methods

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

18. The two subcategories of quantitative methods are \_\_\_\_\_\_.

a. time series analysis and causal methods

b. simple linear regression and multiple linear regression analysis

c. exponential smoothing and seasonality techniques

d. simple moving average and weighted moving average

Ans: A

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Quantitative Methods

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

19. *Past behavior of demand is indicative of its future behavior, therefore past demand data can be used to construct demand forecasts.* This statement is the underlying principle of the \_\_\_\_\_\_ method.

a. causal

b. market research

c. time series analysis

d. Delphi

Ans: C

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Types of Quantitative Methods: Time Series Forecasting

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

20. Which of the following is NOT a major component of a time series?

a. seasonal variations

b. trend line

c. irregular variations

d. best-fit line

Ans: D

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Figure 13.1: Components of a Time Series

Difficulty Level: Hard

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

21. Which of the following is a type of nonlinear trend pattern?

a. damped trend

b. trend line

c. no trend (level demand)

d. exponential growth

Ans: D

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Figure 13.2: Different Possible Trend Patterns

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

22. A \_\_\_\_\_\_ trend often occurs when new products are introduced.

a. linear

b. nonlinear

c. no trend (level demand)

d. damped

Ans: D

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Types of Quantitative Methods: Time Series Forecasting

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

23. A linear trend can be \_\_\_\_\_\_.

a. positive

b. cyclical

c. irregular

d. random

Ans: A

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Types of Quantitative Methods: Time Series Forecasting

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

24. Increased retail sales in December and peak demand for snow shovels during winter are examples of \_\_\_\_\_\_

a. cyclical variations

b. seasonal variations

c. irregular variations

d. random variations

Ans: B

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Types of Quantitative Methods: Time Series Forecasting

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

25. \_\_\_\_\_\_ are wave-like oscillations in demand about the trend line caused by changes in economic or business cycles or due to changes in political conditions.

a. Cyclical variations

b. Seasonal variations

c. Irregular variations

d. Random variations

Ans: A

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Types of Quantitative Methods: Time Series Forecasting

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

26. \_\_\_\_\_\_ variations are treated as outliers and are eliminated from consideration for forecasting purposes.

a. Cyclical

b. Seasonal

c. Irregular

d. Regular

Ans: C

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Types of Quantitative Methods: Time Series Forecasting

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

27. Which of the following is NOT an example of short-term time series forecasting methods?

a. naïve approach

b. moving averages

c. exponential smoothing

d. expert opinion

Ans: D

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Short-Term Time Series Forecasting Methods

Difficulty Level: Easy

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

28. \_\_\_\_\_\_ is a forecasting method in which it is assumed that the demand in the next period will be the same as it is in the current period.

a. Moving average

b. Naïve approach

c. Simple average

d. Sales force opinion

Ans: B

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Naïve Approach

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

29. \_\_\_\_\_\_ is a short-term time series forecasting method in which the average of the most recent demand periods is used to predict demand in the future period.

a. Moving average

b. Naïve approach

c. Linear regression

d. Exponential smoothing

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Moving Average and Weighted Moving Average

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

30. Using the moving average technique, compute the forecast for Week 5 with *n* = 3 with the data that follows.



a. 100

b. 90

c. 80

d. 75

Ans: B

Cognitive Domain: Analysis (Analyze)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Moving Average and Weighted Moving Average

Difficulty Level: Medium

AACSB: Analytical thinking (able to analyze and frame problems)

31. \_\_\_\_\_\_ is a short-term time series forecasting method in which forecasters assign more weight to most recent values in the time series if they feel that these values reflect how the actual demand will behave in the near future.

a. Moving average

b. Linear trend multiplicative method

c. Weighted moving average

d. Linear regression technique

Ans: C

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Moving Average and Weighted Moving Average

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

32. Using the weighted average method, with *W1* = 0.5, *W2* = 0.3 and *W3* = 0.2, compute the forecast for Week 5 with the data that follows.



a. 93

b. 96

c. 98

d. 100

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Moving Average and Weighted Moving Average

Difficulty Level: Medium

AACSB: Analytical thinking (able to analyze and frame problems)

33. Using the naïve approach, compute the forecast for Week 5 with the data that follows.



a. 90

b. 80

c. 110

d. 100

Ans: D

Cognitive Domain: Analysis (Analyze)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location:

Difficulty Level: Naïve Approach

AACSB: Analytical thinking (able to analyze and frame problems)

34. New forecast = [(α \*latest observation) +((1 - α) \* old forecast)] is the formula for \_\_\_\_\_\_.

a. moving average

b. weighted moving average

c. exponential smoothing

d. factor rating method

Ans: C

Cognitive Domain: Analysis (Analyze)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Exponential Smoothing

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

35. When the smoothing constant (α) is set to 1, then exponential smoothing is equivalent to \_\_\_\_\_\_.

a. naïve approach

b. weighted moving average

c. moving average

d. factor rating method

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Exponential Smoothing

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

36. The smoothing constant can take a value between \_\_\_\_\_\_.

a. -1 to +1

b. 0 to 1

c. -1 to 0

d. -∞ to +∞

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Exponential Smoothing

Difficulty Level: Hard

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

37. In order to begin exponential smoothing, a forecaster needs \_\_\_\_\_\_.

a. seasonal indices

b. tracking signals

c. the value of α

d. leading indicators

Ans: C

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-3. Illustrate and distinguish between qualitative and quantitative types of forecasting methods, including their strengths and weaknesses.

Answer Location: Exponential Smoothing

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

38. Which of the following is a component of trend-adjusted forecast (TAF)?

a. leading indicators

b. seasonal indices

c. trend factors

d. tracking signals

Ans: C

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Trend-Adjusted Exponential Smoothing

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

39. Which of the following is FALSE about exponential smoothing models?

a. They create accurate forecasts.

b. They lend themselves to large-scale forecasting.

c. They are not very adaptive.

d. They can be easily applied and automated.

Ans: C

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Trend-Adjusted Exponential Smoothing

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

40. Simple exponential smoothing or the first-order smoothing model can be used when \_\_\_\_\_\_.

a. demand exhibits different types of trend patterns

b. demand is constant or level

c. demand exhibits both trend and seasonal patterns

d. demand is fluctuating

Ans: B

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Trend-Adjusted Exponential Smoothing

Difficulty Level: Hard

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

41. Which of the following models can be used when demand exhibits different types of changing trend patterns?

a. simple exponential smoothing

b. second-order or double smoothing

c. third-order or triple smoothing

d. linear trend multiplicative method

Ans: B

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Trend-Adjusted Exponential Smoothing

Difficulty Level: Hard

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

42. \_\_\_\_\_\_ is a predictive technique that models the relationship between a dependent variable and one or more independent variables.

a. Linear regression analysis

b. Linear trend multiplicative method

c. Linear trend additive method

d. Second-order or double smoothing

Ans: A

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Linear Trend Analysis

Difficulty Level: Easy

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

43. \_\_\_\_\_\_ method results in a straight line that minimizes the sum of the squares of the differences between the line and each of the actual observations.

a. Best-fit

b. Straight-line

c. Least-squares

d. Linear-line

Ans: C

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Linear Trend Analysis

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

44. The line of best fit obtained by the least-squares method is called \_\_\_\_\_\_.

a. regression line

b. linear line

c. nonlinear line

d. moving average line

Ans: A

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Linear Trend Analysis

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

45. Which of the following methods can be used to evaluate the trend component of a time series?

a. simple moving average

b. trend-adjusted exponential smoothing

c. simple linear regression

d. multiple linear regression

Ans: B

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Linear Trend Analysis

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

46. Which of the following is a model of combining the trend and seasonal components?

a. subtractive

b. multiplicative

c. trend-adjusted exponential smoothing

d. linear trend analysis

Ans: B

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Techniques for Forecasting Seasonality

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

47. In a(n) \_\_\_\_\_\_ model, the seasonal indices are added to the projected trend data to create a combined forecast.

a. additive

b. multiplicative

c. subtractive

d. trend-adjusted

Ans: A

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Techniques for Forecasting Seasonality

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

48. Additive models are used when patterns of seasonal variations \_\_\_\_\_\_.

a. remain constant over time

b. become more or less pronounced as the trend component increases or decreases

c. keep fluctuating over time

d. exhibits different types of trend patterns

Ans: A

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Techniques for Forecasting Seasonality

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

49. Which of the following methods is used for calculating seasonal indices?

a. simple linear regression

b. centered moving average

c. multiple linear regression

d. weighted moving average

Ans: B

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Techniques for Forecasting Seasonality

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

50. Using the data that follows, compute the seasonal indices for January, February, and March using the simple average method.



a. January: 0.10, February: 0.88, March: 0.92

b. January: 0.97, February: 1.01, March: 0.72

c. January: 0.87, February: 1.08, March: 0.92

d. January: 0.97, February: 0.88, March: 0.92

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: The Simple Average Method

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

51. In \_\_\_\_\_\_ method, the seasonal indices are expressed as percentage and the combined forecast is expressed as percentage adjustments of the underlying linear trend.

a. linear trend analysis

b. trend-adjusted exponential smoothing

c. linear trend multiplicative

d. linear trend additive

Ans: C

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: The Linear Trend Multiplicative Method

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

52. One requirement for using the linear trend multiplicative method is \_\_\_\_\_\_.

a. tracking signals should be used

b. time series demand data should exhibit a linear trend with seasonal variations

c. seasonal indices need not be available

d. time series demand should exhibit a nonlinear trend with seasonal variations

Ans: B

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: The Linear Trend Multiplicative Method

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

53. Which of the following statements is true?

a. Leading indicators are frequently used to track cyclical fluctuations.

b. Leading indicators are frequently used to track seasonal fluctuations.

c. Lagging indicators are frequently used to track cyclical fluctuations.

d. Lagging indicators are frequently used to track seasonal fluctuations.

Ans: A

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Techniques for Evaluating Cyclical Variations

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

54. Which of the following is a form of quantitative analysis that uses causal techniques in order to identify related variables in order to make forecasts?

a. associative methods

b. time series analysis

c. the Delphi method

d. moving average

Ans: A

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Types of Quantitative Methods: Causal or Associative Methods

Difficulty Level: Easy

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

55. The independent variable in linear regression analysis is also referred to as the \_\_\_\_\_\_.

a. predicted variable

b. predictor variable

c. random variable

d. discrete variable

Ans: B

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Linear Regression Analysis

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

56. In linear regression analysis, the term *predicted variable* is another name for \_\_\_\_\_\_.

a. independent variable

b. random variable

c. dependent variable

d. discrete variable

Ans: C

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Linear Regression Analysis

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

57. Which of the following is NOT used to evaluate the validity of the regression equation for forecasting?

a. standard error of the estimate

b. coefficient of determination

c. correlation coefficient

d. mean absolute deviation (MAD)

Ans: D

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Evaluating the Goodness of Fit of the Regression Line

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

58. Which of the following is NOT a measure of variation that must be calculated prior to determining the value of coefficient of determination (R2)?

a. total sum of squares (SST)

b. error sum of squares (SSE)

c. regression sum of squares (SSR)

d. cumulative sum of error (CSE)

Ans: D

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Evaluating the Goodness of Fit of the Regression Line

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

59. The \_\_\_\_\_\_ is the proportion of variation explained by regression.

a. standard error of the estimate

b. total sum of squares (SST)

c. correlation coefficient

d. coefficient of determination

Ans: D

Cognitive Domain: Analysis (Analyze)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Evaluating the Goodness of Fit of the Regression Line

Difficulty Level: Medium

AACSB: Analytical thinking (able to analyze and frame problems)

60. In regression analysis, the \_\_\_\_\_\_ is the measure of the variation of the actual *Y* (independent variable) values around the mean *Y* (Y̅).

a. total sum of squares (SST)

b. error sum of squares (SSE)

c. regression sum of squares (SSR)

d. standard error of the estimate

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Evaluating the Goodness of Fit of the Regression Line

Difficulty Level: Medium

AACSB: Analytical thinking (able to analyze and frame problems)

61. The regression sum of squares (SSR) is the \_\_\_\_\_\_.

a. unexplained variation

b. explained variation

c. total variation

d. random variation

Ans: B

Cognitive Domain: Analysis (Analyze)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Evaluating the Goodness of Fit of the Regression Line

Difficulty Level: Medium

AACSB: Analytical thinking (able to analyze and frame problems)

62. Which of the following statements is true about the error sum of squares (SSE)?

a. It measures the variation resulting from the relationship between the independent and dependent variable.

b. It measures the variation of the actual *Y* (independent variable) values around the mean *Y* (Y̅).

c. It measures the variation not explained by the regression but resulting from other factors or variables.

d. It measures the variation explained by the regression.

Ans: C

Cognitive Domain: Analysis (Analyze)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Evaluating the Goodness of Fit of the Regression Line

Difficulty Level: Medium

AACSB: Analytical thinking (able to analyze and frame problems)

63. The coefficient of determination has a value between \_\_\_\_\_\_.

a. 0 and 1

b. -1 and +1

c. -∞ to +∞

d. -1 to 0

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Evaluating the Goodness of Fit of the Regression Line

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

64. Which of the following statements is true about the coefficient of determination (R2)?

a. The higher the value of R2, the more confidence we have that the estimate is accurate.

b. The lower the value of R2, the more confidence we have that the estimate is accurate.

c. The value of R2 has no significance on the accuracy of the estimate.

d. The estimate is accurate when R2 = 0.

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Evaluating the Goodness of Fit of the Regression Line

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

65. The \_\_\_\_\_\_ measures the strength of the relationship between the independent and dependent variable in regression analysis.

a. standard error of the estimate

b. total sum of squares (SST)

c. coefficient of determination

d. correlation coefficient

Ans: D

Cognitive Domain: Analysis (Analyze)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Evaluating the Goodness of Fit of the Regression Line

Difficulty Level: Medium

AACSB: Analytical thinking (able to analyze and frame problems)

66. The correlation coefficient takes on a value between \_\_\_\_\_\_.

a. 0 and 1

b. -1 and +1

c. -∞ to +∞

d. -2 to +2

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Evaluating the Goodness of Fit of the Regression Line

Difficulty Level: Hard

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

67. The *\_\_\_\_\_\_* measures the random variation, which is the variation of the actual (observed) *y* values from the predicted *y* values (ŷi).

a. correlation coefficient

b. error sum of squares (SSE)

c. coefficient of determination

d. standard error of the estimate

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Evaluating the Goodness of Fit of the Regression Line

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

68. Which of following assumptions related to the validity of the linear regression model is false?

a. The independent and dependent variables have a linear relationship.

b. The error terms have a constant variance.

c. The error terms are not normally distributed.

d. The error terms have no correlation.

Ans: C

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Evaluating the Goodness of Fit of the Regression Line

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

69. “The demand for a product is a function of both the price of the product and the dollars spent on promotions by the company that produced it.” Which of the following methods is appropriate to forecast demand for the product?

a. simple linear regression analysis

b. multiple linear regression analysis

c. multiplicative method

d. additive method

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Multiple Linear Regression Analysis

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

70. Which of following approaches should forecasters follow while choosing the best forecasting method?

a. Select the method that results in the fewest forecasting errors.

b. Examine the performance of a single forecasting method over time.

c. Select the method that results in the largest forecasting errors.

d. There is no significance on the forecasting method selected since there will always be differences between the forecasts and actual values.

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Measuring and Monitoring the Accuracy of Forecasting Methods

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

71. Which of the following is NOT a way to measure forecasting errors?

a. mean squared error (MSE)

b. mean absolute deviation (MAD)

c. mean absolute percentage error (MAPE)

d. error sum of squares (SSE)

Ans: D

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Measuring and Monitoring the Accuracy of Forecasting Methods

Difficulty Level: Hard

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

72. \_\_\_\_\_\_ is the average of the sum of the absolute differences between the actual and forecasted demand values.

a. Mean squared error (MSE)

b. Mean absolute deviation (MAD)

c. Mean absolute percentage error (MAPE)

d. Cumulative sum error (CSE)

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Mean Absolute Deviation (MAD)

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

73. A large positive value of cumulative sum error (CSE) implies \_\_\_\_\_\_.

a. the forecast is consistently overstating the actual demand

b. the forecast is consistently understating the actual demand

c. the forecast is exactly equal to the actual demand

d. the forecast is never equal to actual demand

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Cumulative Sum Error (CSE) and Bias

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

74. The tendency to consistently produce a particular type of forecast (high or low) that isn’t accurate is called a(n) \_\_\_\_\_\_.

a. overestimate

b. underestimate

c. bias

d. wrong estimate

Ans: C

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Cumulative Sum Error (CSE) and Bias

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

75. The \_\_\_\_\_\_ is the average of the sum of the squared differences between the actual and the forecasted demand values.

a. mean squared error (MSE)

b. mean absolute deviation (MAD)

c. mean absolute percentage error (MAPE)

d. cumulative sum error (CSE)

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Mean Squared Error (MSE)

Difficulty Level: Easy

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

76. Mean absolute percentage error (MAPE) is the \_\_\_\_\_\_.

a. average of the sum of the absolute differences between the actual and forecasted demand values

b. average of the sum of the squared differences between the actual and forecasted demand values

c. average of the absolute percentage error

d. average of the absolute differences between the actual and forecasted demand values

Ans: C

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Mean Absolute Percentage Error (MAPE)

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

77. Which of the following is a drawback of mean absolute deviation (MAD)?

a. There is no information about the forecasting bias.

b. The cancellation of the positive and negative forecast errors can distort the information.

c. Large errors tend to be magnified because they are squared.

d. It is very complex to calculate.

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Mean Absolute Percentage Error (MAPE)

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

78. “Cancellation of the positive and negative forecast errors can distort the information.” This is a drawback of \_\_\_\_\_\_.

a. mean squared error (MSE)

b. mean absolute deviation (MAD)

c. mean absolute percentage error (MAPE)

d. cumulative sum error (CSE)

Ans: D

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-4. Use the four forecast error measures to track forecast accuracy.

Answer Location: Mean Absolute Percentage Error (MAPE)

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

79. Which of the following statements is true about the forecasting error measures?

a. Mean absolute deviation is complex and difficult to compute.

b. Cumulative sum error tracks the forecasting bias.

c. Mean absolute deviation provides the percentage of error.

d. Mean squared errors cannot track the accuracy of the forecast.

Ans: B

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-5. Employ the methods used to monitor and control forecasts.

Answer Location: Mean Absolute Percentage Error (MAPE)

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

80. Which of the following variations cannot be predicted and can be identified only after occurrence?

a. random variations

b. irregular variations

c. seasonal variations

d. cyclical variations

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-5. Employ the methods used to monitor and control forecasts.

Answer Location: Types of Quantitative Methods: Time Series Forecasting

Difficulty Level: Easy

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

81. Which of the following methods is used by companies for monitoring and controlling forecasts?

a. tracking signals

b. trend charts

c. seasonal indices

d. control signals

Ans: A

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-5. Employ the methods used to monitor and control forecasts.

Answer Location: Monitoring and Controlling Forecasts

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

82. The use of \_\_\_\_\_\_ involves establishing an upper and lower control limit to determine if the forecasting errors related to a method are within the limits.

a. tracking signals

b. control charts

c. monitoring signals

d. trend charts

Ans: A

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-5. Employ the methods used to monitor and control forecasts.

Answer Location: Monitoring and Controlling Forecasts

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

83. A tracking signal value that goes outside the control limits implies \_\_\_\_\_\_.

a. the forecasting method being used is good and no changes are required

b. the forecasting method being used should be modified/changed

c. the forecasting method is under control

d. the new tracking signals should be used

Ans: B

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-5. Employ the methods used to monitor and control forecasts.

Answer Location: Monitoring and Controlling Forecasts

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

84. Which of the following statements is false about tracking signals?

a. They monitor whether the forecasts lie around the target.

b. Both actual and forecasted demand values are required to calculate tracking signals.

c. They cannot be used to determine whether or not the demand pattern has changed.

d. They monitor whether the forecasts are consistently too high or low.

Ans: C

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-5. Employ the methods used to monitor and control forecasts.

Answer Location: Monitoring and Controlling Forecasts

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

85. Exponential growth/decline are examples of \_\_\_\_\_\_.

a. seasonal trend

b. linear trend

c. nonlinear trend

d. damped trend

Ans: C

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-5. Employ the methods used to monitor and control forecasts.

Answer Location: Types of Quantitative Methods: Time Series Forecasting

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

86. Falsely flagging a forecasting method as out of control when small deviations occurring in one direction may not really reflect a real change in demand pattern is a drawback of \_\_\_\_\_\_.

a. control charts

b. r-charts

c. tracking signals

d. leading indicators

Ans: C

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-5. Employ the methods used to monitor and control forecasts.

Answer Location: Monitoring and Controlling Forecasts

Difficulty Level: Hard

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

87. With forecasting error being measured in MAD (mean absolute deviation), the 3σ control limits imply \_\_\_\_\_\_.

a. the probability that the forecasting errors are attributable to random variation is 3%

b. the probability that the forecasting errors are attributable to random variation is 99.7%

c. the probability that the forecasting errors are attributable to random variation is 2.3%

d. the probability that the forecasting errors are attributable to random variation is 50%

Ans: B

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-5. Employ the methods used to monitor and control forecasts.

Answer Location: Monitoring and Controlling Forecasts

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

88. Which of the following statements is false about trend patterns?

a. Trend is the long-term movement of data over time.

b. Damped trend occurs when the level of demand increases initially, but over the long run, it levels off.

c. Exponential decline occurs when each succeeding observation decreases by some constant factor.

d. Linear trend often occurs when new products are introduced.

Ans: D

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-6. Identify the steps involved in forecasting for supply chains.

Answer Location: Types of Quantitative Methods: Times Series Forecasting

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

89. Which of the following is NOT a step in supply chain forecasting for a company in the consumer products industry?

a. Determine the purpose of the forecast.

b. Collect non-historical data.

c. Adjust the baseline forecast for marketing promotions.

d. Share the forecast information with suppliers and downstream customers.

Ans: B

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-6. Identify the steps involved in forecasting for supply chains.

Answer Location: Forecasting for Supply Chains

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

90. Demand forecasts of individual items are needed for \_\_\_\_\_\_.

a. short-term activities like production scheduling

b. medium-term activities like sales planning

c. long-term activities like new product introduction

d. strategic activities like service acquisition

Ans: A

Cognitive Domain: Comprehension (Understand)

Learning Objective: 13-6. Identify the steps involved in forecasting for supply chains.

Answer Location: Forecasting for Supply Chains

Difficulty Level: Medium

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

91. The forecast time horizon for tactical decision-making is \_\_\_\_\_\_.

a. short term

b. medium term

c. long term

d. very long term

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-6. Identify the steps involved in forecasting for supply chains.

Answer Location: Table 13.1 Demand-Forecast Time Horizon of Business Activities

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

92. Forecasts can contribute to ethical decision-making in which of the following ways?

a. Ethics are not used to make forecasts.

b. Ethics affect the results of the forecasting efforts.

c. Ethics do not usually affect the results of the forecasting efforts.

d. Ethics do not play a prominent role in forecasting.

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-6. Identify the steps involved in forecasting for supply chains.

Answer Location: Ethical Issues

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

93. \_\_\_\_\_\_ are periodic, fairly short-term fluctuations in demand often caused by human activities or weather.

a. Cyclical variations

b. Seasonal variations

c. Irregular variations

d. Random variations

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-6. Identify the steps involved in forecasting for supply chains.

Answer Location: Types of Quantitative Methods: Time Series Forecasting

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

94. Which of the following models can be used when demand exhibits both trend and seasonal patterns?

a. simple exponential smoothing

b. second-order or double smoothing

c. third-order or triple smoothing

d. complex exponential smoothing

Ans: C

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-6. Identify the steps involved in forecasting for supply chains.

Answer Location: Trend-Adjusted Exponential Smoothing

Difficulty Level: Hard

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

95. The demand levels remain more or less constant over time. This is a characteristic of \_\_\_\_\_\_.

a. no trend (level demand)

b. linear trend

c. exponential growth

d. damped trend

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-6. Identify the steps involved in forecasting for supply chains.

Answer Location: Types of Quantitative Methods: Time Series Forecasting

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

96. With \_\_\_\_\_\_ trend, the level of demand increases initially, but over the long run, it levels off.

a. no trend (level demand)

b. linear trend

c. exponential growth

d. damped trend

Ans: D

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-6. Identify the steps involved in forecasting for supply chains.

Answer Location: Types of Quantitative Methods: Time Series Forecasting

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

97. The unusual demand for basic necessities in the aftermath of a natural disaster is an example of \_\_\_\_\_\_.

a. cyclical variations

b. irregular variations

c. seasonal variations

d. exponential variations

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-6. Identify the steps involved in forecasting for supply chains.

Answer Location: Types of Quantitative Methods: Time Series Forecasting

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

98. Multiplicative models are used when patterns of seasonal variations \_\_\_\_\_\_.

a. remain constant over time

b. become more or less pronounced as the trend component increases or decreases

c. constantly fluctuate over time

d. remain linear over time

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-6. Identify the steps involved in forecasting for supply chains.

Answer Location: Techniques for Forecasting Seasonality

Difficulty Level: Medium

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

99. \_\_\_\_\_\_ is the sum of the differences between the actual and the forecasted demand values.

a. Mean squared error (MSE)

b. Mean absolute deviation (MAD)

c. Mean absolute percentage error (MAPE)

d. Cumulative sum error (CSE)

Ans: D

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-6. Identify the steps involved in forecasting for supply chains.

Answer Location: Mean Squared Error (MSE)

Difficulty Level: Easy

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

100. Factors that capture the seasonal contribution to demand in each period during the year are called \_\_\_\_\_\_.

a. seasonal patterns

b. seasonal indices

c. seasonal signals

d. seasonal indicators

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 13-6. Identify the steps involved in forecasting for supply chains.

Answer Location: Techniques for Forecasting Seasonality

Difficulty Level: Easy

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution