# Test Bank for Business Intelligence Analytics and Data Science A Managerial Perspective 4th Sharda

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*Business Intelligence, 4e* **(Sharda/Delen/Turban)**
**Chapter 2 Descriptive Analytics I: Nature of Data, Statistical Modeling, and Visualization**

1) One of SiriusXM's challenges was tracking potential customers when cars were sold.
Answer: TRUE
Diff: 1 Page Ref: 54

2) To respond to its market challenges, SiriusXM decided to focus on manufacturing efficiency.
Answer: FALSE
Diff: 2 Page Ref: 55

3) Data is the contextualization of information, that is, information set in context.
Answer: FALSE
Diff: 1 Page Ref: 98

4) Data is the main ingredient for any BI, data science, and business analytics initiative.
Answer: TRUE
Diff: 2 Page Ref: 57

5) Predictive algorithms generally require a flat file with a target variable, so making data analytics ready for prediction means that data sets must be transformed into a flat-file format and made ready for ingestion into those predictive algorithms.
Answer: TRUE
Diff: 1 Page Ref: 58

6) The data storage component of a business reporting system builds the various reports and hosts them for, or disseminates them to users. It also provides notification, annotation, collaboration, and other services.
Answer: FALSE
Diff: 2 Page Ref: 98

7) In the FEMA case study, the BureauNet software was the primary reason behind the increased speed and relevance of the reports FEMA employees received.
Answer: TRUE
Diff: 2 Page Ref: 100

8) Google Maps has set new standards for data visualization with its intuitive Web mapping software.
Answer: TRUE
Diff: 2 Page Ref: 103

9) There are basic chart types and specialized chart types. A Gantt chart is a specialized chart type.
Answer: TRUE
Diff: 2 Page Ref: 107


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10) Visualization differs from traditional charts and graphs in complexity of data sets and use of multiple dimensions and measures.
Answer: TRUE
Diff: 2 Page Ref: 110

11) When telling a story during a presentation, it is best to avoid describing hurdles that your character must overcome, to avoid souring the mood.
Answer: FALSE
Diff: 2 Page Ref: 113

12) Visual analytics is aimed at answering, "What is it happening?" and is usually associated with business analytics.
Answer: FALSE
Diff: 3 Page Ref: 112

13) Dashboards provide visual displays of important information that is consolidated and arranged across several screens to maintain data order.
Answer: FALSE
Diff: 2 Page Ref: 117

14) In the Dallas Cowboys case study, the focus was on using data analytics to decide which players would play every week.
Answer: FALSE
Diff: 2 Page Ref: 118

15) Data source reliability means that data are correct and are a good match for the analytics problem.
Answer: FALSE
Diff: 1 Page Ref: 59

16) Data accessibility means that the data are easily and readily obtainable.
Answer: TRUE
Diff: 3 Page Ref: 59

17) Structured data is what data mining algorithms use and can be classified as categorical or numeric.
Answer: TRUE
Diff: 2 Page Ref: 61

18) Interval data are variables that can be measured on interval scales.
Answer: TRUE
Diff: 2 Page Ref: 62

19) Nominal data represent the labels of multiple classes used to divide a variable into specific groups.
Answer: FALSE
Diff: 2 Page Ref: 61


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20) Descriptive statistics is all about describing the sample data on hand.
Answer: TRUE
Diff: 2 Page Ref: 75

21) Which characteristic of data means that all the required data elements are included in the data set?
A) data source reliability
B) data accessibility
C) data richness
D) data granularity
Answer: C
Diff: 2 Page Ref: 59-60

22) Key performance indicators (KPIs) are metrics typically used to measure
A) database responsiveness.
B) qualitative feedback.
C) external results.
D) internal results.
Answer: D
Diff: 2 Page Ref: 99

23) Kaplan and Norton developed a report that presents an integrated view of success in the organization called
A) metric management reports.
B) balanced scorecard-type reports.
C) dashboard-type reports.
D) visual reports.
Answer: B
Diff: 2 Page Ref: 99

24) Which characteristic of data requires that the variables and data values be defined at the lowest (or as low as required) level of detail for the intended use of the data?
A) data source reliability
B) data accessibility
C) data richness
D) data granularity
Answer: D
Diff: 2 Page Ref: 59-60

25) Which of the following is LEAST related to data/information visualization?
A) information graphics
B) scientific visualization
C) statistical graphics
D) graphic artwork
Answer: D
Diff: 2 Page Ref: 101


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26) The Internet emerged as a new medium for visualization and brought all the following EXCEPT
A) worldwide digital distribution of visualization.
B) immersive environments for consuming data.
C) new forms of computation of business logic.
D) new graphics displays through PC displays.
Answer: C
Diff: 2 Page Ref: 101-103

27) Which kind of chart is described as an enhanced version of a scatter plot?
A) heat map
B) bullet
C) pie chart
D) bubble chart
Answer: D
Diff: 3 Page Ref: 107

28) Which type of visualization tool can be very helpful when the intention is to show relative proportions of dollars per department allocated by a university administration?
A) heat map
B) bullet
C) pie chart
D) bubble chart
Answer: C
Diff: 3 Page Ref: 106

29) Which type of visualization tool can be very helpful when a data set contains location data?
A) bar chart
B) geographic map
C) highlight table
D) tree map
Answer: B
Diff: 2 Page Ref: 107

30) Which type of question does visual analytics seeks to answer?
A) Why is it happening?
B) What happened yesterday?
C) What is happening today?
D) When did it happen?
Answer: A
Diff: 2 Page Ref: 112


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31) When you tell a story in a presentation, all of the following are true EXCEPT
A) a story should make sense and order out of a lot of background noise.
B) a well-told story should have no need for subsequent discussion.
C) stories and their lessons should be easy to remember.
D) the outcome and reasons for it should be clear at the end of your story.
Answer: B
Diff: 2 Page Ref: 113

32) Benefits of the latest visual analytics tools, such as SAS Visual Analytics, include all of the following EXCEPT
A) mobile platforms such as the iPhone are supported by these products.
B) it is easier to spot useful patterns and trends in the data.
C) they explore massive amounts of data in hours, not days.
D) there is less demand on IT departments for reports.
Answer: C
Diff: 2 Page Ref: 115

33) What is the management feature of a dashboard?
A) operational data that identify what actions to take to resolve a problem
B) summarized dimensional data to analyze the root cause of problems
C) summarized dimensional data to monitor key performance metrics
D) graphical, abstracted data to monitor key performance metrics
Answer: A
Diff: 3 Page Ref: 119

34) What is the fundamental challenge of dashboard design?
A) ensuring that users across the organization have access to it
B) ensuring that the organization has the appropriate hardware onsite to support it
C) ensuring that the organization has access to the latest Web browsers
D) ensuring that the required information is shown clearly on a single screen
Answer: D
Diff: 3 Page Ref: 119

35) Contextual metadata for a dashboard includes all the following EXCEPT
A) whether any high-value transactions that would skew the overall trends were rejected as a part of the loading process.
B) which operating system is running the dashboard server software.
C) whether the dashboard is presenting "fresh" or "stale" information.
D) when the data warehouse was last refreshed.
Answer: B
Diff: 2 Page Ref: 121


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36) Dashboards can be presented at all the following levels EXCEPT
A) the visual dashboard level.
B) the static report level.
C) the visual cube level.
D) the self-service cube level.
Answer: C
Diff: 2 Page Ref: 122

37) This measure of central tendency is the sum of all the values/observations divided by the number of observations in the data set.
A) dispersion
B) mode
C) median
D) arithmetic mean
Answer: D
Diff: 3 Page Ref: 76

38) This measure of dispersion is calculated by simply taking the square root of the variations.
A) standard deviation
B) range
C) variance
D) arithmetic mean
Answer: A
Diff: 2 Page Ref: 78

39) This plot is a graphical illustration of several descriptive statistics about a given data set.
A) pie chart
B) bar graph
C) box-and-whiskers plot
D) kurtosis
Answer: C
Diff: 3 Page Ref: 79

40) This technique makes no *a priori* assumption of whether one variable is dependent on the other(s) and is not concerned with the relationship between variables; instead it gives an estimate on the degree of association between the variables.
A) regression
B) correlation
C) means test
D) multiple regression
Answer: B
Diff: 2 Page Ref: 86

41) A(n) _____ is a communication artifact, concerning business matters, prepared with the specific intention of relaying information in a presentable form.
Answer: report
Diff: 2 Page Ref: 98


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42) _____ statistics is about drawing conclusions about the characteristics of the population.
Answer: Inferential
Diff: 2 Page Ref: 75

43) Due to the _____ expansion of information technology coupled with the need for improved competitiveness in business, there has been an increase in the use of computing power to produce unified reports that join different views of the enterprise in one place.
Answer: rapid
Diff: 3 Page Ref: 98

44) _____ management reports are used to manage business performance through outcome-oriented metrics in many organizations.
Answer: Metric
Diff: 2 Page Ref: 99

45) When validating the assumptions of a regression, _____ assumes that the relationship between the response variable and the explanatory variables are linear.
Answer: linearity
Diff: 2 Page Ref: 89

46) _____ regression is a very popular, statistically sound, probability-based classification algorithm that employs supervised learning.
Answer: Logistic
Diff: 2 Page Ref: 90

47) _____ charts are useful in displaying nominal data or numerical data that splits nicely into different categories so you can quickly see comparative results and trends.
Answer: Bar
Diff: 1 Page Ref: 106

48) _____ charts or network diagrams show precedence relationships among the project activities/tasks.
Answer: PERT
Diff: 1 Page Ref: 107

49) _____ are typically used together with other charts and graphs, as opposed to by themselves, and show postal codes, country names, etc.
Answer: Maps
Diff: 1 Page Ref: 107

50) Typical charts, graphs, and other visual elements used in visualization-based applications usually involve _____ dimensions.
Answer: two
Diff: 2 Page Ref: 110


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51) Visual analytics is widely regarded as the combination of visualization and _____ analytics.
Answer: predictive
Diff: 2 Page Ref: 112

52) Dashboards present visual displays of important information that are consolidated and arranged on a single _____.
Answer: screen
Diff: 1 Page Ref: 117

53) With dashboards, the layer of information that uses graphical, abstracted data to keep tabs on key performance metrics is the _____ layer.
Answer: monitoring
Diff: 2 Page Ref: 119

54) _____ series forecasting is the use of mathematical modeling to predict future values of the variable of interest based on previously observed values.
Answer: Time
Diff: 1 Page Ref: 97

55) Information dashboards enable _____ operations that allow the users to view underlying data sources and obtain more detail.
Answer: drill-down/drill-through
Diff: 2 Page Ref: 121

56) With a dashboard, information on sources of the data being presented, the quality and currency of underlying data provide contextual _____ for users.
Answer: metadata
Diff: 2 Page Ref: 121

57) When validating the assumptions of a regression, _____ assumes that the errors of the response variable are normally distributed.
Answer: normality
Diff: 2 Page Ref: 89-90

58) _____ charts are effective when you have nominal data or numerical data that splits nicely into different categories so you can quickly see comparative results and trends within your data.
Answer: Bar
Diff: 1 Page Ref: 106

59) _____ plots are often used to explore the relationship between two or three variables (in 2-D or 2-D visuals).
Answer: Scatter
Diff: 2 Page Ref: 106


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60) _____ charts are a special case of horizontal bar charts that are used to portray project timelines, project tasks/activity durations, and overlap among the tasks/activities.
Answer: Gantt
Diff: 2 Page Ref: 107

61) List and describe the three major categories of business reports.
Answer:
- **Metric management reports.** Many organizations manage business performance through outcome-oriented metrics. For external groups, these are service-level agreements (SLAs). For internal management, they are key performance indicators (KPIs).
- **Dashboard-type reports.** This report presents a range of different performance indicators on one page, like a dashboard in a car. Typically, there is a set of predefined reports with static elements and fixed structure, but customization of the dashboard is allowed through widgets, views, and set targets for various metrics.
- **Balanced scorecard–type reports**. This is a method developed by Kaplan and Norton that attempts to present an integrated view of success in an organization. In addition to financial performance, balanced scorecard–type reports also include customer, business process, and learning and growth perspectives.

Diff: 2 Page Ref: 99

62) List five types of specialized charts and graphs.
Answer:
- Histograms
- Gantt charts
- PERT charts
- Geographic maps
- Bullets
- Heat maps
- Highlight tables
- Tree maps

Diff: 2 Page Ref: 107-108

63) According to Eckerson (2006), a well-known expert on BI dashboards, what are the three layers of information of a dashboard?
Answer:
**1. Monitoring**. Graphical, abstracted data to monitor key performance metrics.
**2. Analysis**. Summarized dimensional data to analyze the root cause of problems.
**3. Management**. Detailed operational data that identify what actions to take to resolve a problem.
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64) List the five most common functions of business reports.
Answer:
- To ensure that all departments are functioning properly
- To provide information
- To provide the results of an analysis
- To persuade others to act
- To create an organizational memory (as part of a knowledge management system)

Diff: 2 Page Ref: 98

65) What are the most important assumptions in linear regression?
Answer:
1. Linearity. This assumption states that the relationship between the response variable and the explanatory variables is linear. That is, the expected value of the response variable is a straight-line function of each explanatory variable, while holding all other explanatory variables fixed. Also, the slope of the line does not depend on the values of the other variables. It also implies that the effects of different explanatory variables on the expected value of the response variable are additive in nature.
2. Independence (of errors). This assumption states that the errors of the response variable are uncorrelated with each other. This independence of the errors is weaker than actual statistical independence, which is a stronger condition and is often not needed for linear regression analysis.
3. Normality (of errors). This assumption states that the errors of the response variable are normally distributed. That is, they are supposed to be totally random and should not represent any nonrandom patterns.
4. Constant variance (of errors). This assumption, also called homoscedasticity, states that the response variables have the same variance in their error, regardless of the values of the explanatory variables. In practice this assumption is invalid if the response variable varies over a wide enough range/scale.
5. Multicollinearity. This assumption states that the explanatory variables are not correlated (i.e., do not replicate the same but provide a different perspective of the information needed for the model). Multicollinearity can be triggered by having two or more perfectly correlated explanatory variables presented to the model (e.g., if the same explanatory variable is mistakenly included in the model twice, one with a slight transformation of the same variable). A correlation-based data assessment usually catches this error.

Diff: 2 Page Ref: 89-90

66) Describe the difference between simple and multiple regression.
Answer: If the regression equation is built between one response variable and one explanatory variable, then it is called simple regression. Multiple regression is the extension of simple regression where the explanatory variables are more than one.
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67) Describe the difference between descriptive and inferential statistics.
Answer: The main difference between descriptive and inferential statistics is the data used in these methods—whereas descriptive statistics is all about describing the sample data on hand, and inferential statistics is about drawing inferences or conclusions about the characteristics of the population.
Diff: 2 Page Ref: 75

68) Describe categorical and nominal data.
Answer: Categorical data represent the labels of multiple classes used to divide a variable into specific groups. Examples of categorical variables include race, sex, age group, and educational level. Nominal data contain measurements of simple codes assigned to objects as labels, which are not measurements. For example, the variable marital status can be generally categorized as (1) single, (2) married, and (3) divorced.
Diff: 2 Page Ref: 61


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