1) Which of the following best illustrates the relationship between entities and attributes?
A) The entity CUSTOMER with the attribute PRODUCT
B) The entity CUSTOMER with the attribute PURCHASE
C) The entity PRODUCT with the attribute PURCHASE
D) The entity PRODUCT with the attribute CUSTOMER
E) The entity PURCHASE with the attribute CUSTOMER
Answer: B
Difficulty: Challenging
AACSB: Analytical thinking
LO: 6-1: What are the problems of managing data resources in a traditional file environment?

2) All of the following are issues with the traditional file environment *except*:
A) data inconsistency.
B) inability to develop specialized applications for functional areas.
C) lack of flexibility in creating ad-hoc reports.
D) poor security.
E) data sharing.
Answer: B
Difficulty: Challenging
AACSB: Information technology
LO: 6-1: What are the problems of managing data resources in a traditional file environment?

3) A characteristic or quality that describes a particular database entity is called a(n):
A) field.
B) tuple.
C) key field.
D) attribute.
E) relationship.
Answer: D
Difficulty: Easy
AACSB: Information technology
LO: 6-1: What are the problems of managing data resources in a traditional file environment?

4) A database _____ describes a database entity.
A) byte
B) field
C) record
D) value
E) file
Answer: C
Difficulty: Moderate
AACSB: Analytical thinking
LO: 6-1: What are the problems of managing data resources in a traditional file environment?

5) _____ creates confusion that hampers the creation of information systems that integrate data from different sources.
A) Batch processing
B) Data redundancy
C) Data independence
D) Online processing
E) Data quality
Answer: B
Difficulty: Easy
AACSB: Information technology
LO: 6-1: What are the problems of managing data resources in a traditional file environment?

6) Data _____ occurs when the same data is duplicated in multiple files of a database.
A) redundancy
B) repetition
C) independence
D) partitions
E) discrepancy
Answer: A
Difficulty: Easy
AACSB: Information technology
LO: 6-1: What are the problems of managing data resources in a traditional file environment?

7) Which of the following occurs when the same attribute in related data files has different values?
A) Data redundancy
B) Data duplication
C) Data dependence
D) Data discrepancy
E) Data inconsistency
Answer: E
Difficulty: Challenging
AACSB: Information technology
LO: 6-1: What are the problems of managing data resources in a traditional file environment?

8) Which of the following is a grouping of characters into a word, a group of words, or a complete number?
A) File
B) Table
C) Entity
D) Field
E) Tuple
Answer: D
Difficulty: Easy
AACSB: Information technology
LO: 6-1: What are the problems of managing data resources in a traditional file environment?

9) The fact that a traditional file system cannot respond to unanticipated information requirements in a timely fashion is an example of which of the following issues with traditional file systems?
A) Program-data dependence
B) Lack of flexibility
C) Poor security
D) Lack of data sharing
E) Data redundancy
Answer: B
Difficulty: Moderate
AACSB: Information technology
LO: 6-1: What are the problems of managing data resources in a traditional file environment?

10) Which common database challenge is illustrated by a person receiving multiple copies of an L.L. Bean catalog, each addressed to a slightly different variation of his or her full name?
A) Data normalization
B) Data accuracy
C) Data redundancy
D) Data inconsistency
E) Data duplication
Answer: D
Difficulty: Challenging
AACSB: Information technology
LO: 6-1: What are the problems of managing data resources in a traditional file environment?

11) A record is a group of related fields.
Answer: TRUE
Difficulty: Easy
AACSB: Information technology
LO: 6-1: What are the problems of managing data resources in a traditional file environment?

12) Program-data dependence refers to the coupling of data stored in files and the specific programs required to update and maintain those files such that changes in programs require changes to the data.
Answer: TRUE
Difficulty: Moderate
AACSB: Information technology
LO: 6-1: What are the problems of managing data resources in a traditional file environment?

13) You have been asked to design a new contracts database for a small publishing company. What fields do you anticipate needing? Which of these fields might be in use in other databases used by the company?
Answer: Author first name, author last name, author address, agent name and address, title of book, book ISBN, date of contract, amount of money, payment schedule, date contract ends. Other databases might be an author database (author names, address, and agent details), a book title database (title and ISBN of book), and financial database (payments made).
Difficulty: Moderate
AACSB: Analytical thinking
LO: 6-1: What are the problems of managing data resources in a traditional file environment?

14) List at least three conditions that contribute to data redundancy and inconsistency.
Answer: Data redundancy occurs when different divisions, functional areas, and groups in an organization independently collect the same piece of information. Because it is collected and maintained in so many different places, the same data item may have:
1. different meanings in different parts of the organization,
2. different names may be used for the same item, and
3. different descriptions for the same condition.
In addition, the fields into which the data is gathered may have different field names, different attributes, or different constraints.
Difficulty: Moderate
AACSB: Analytical thinking
LO: 6-1: What are the problems of managing data resources in a traditional file environment?

15) Which of the following enables a DBMS to reduce data redundancy and inconsistency?
A) Ability to enforce referential integrity
B) Ability to couple program and data
C) Use of a data dictionary
D) Ability to create two-dimensional tables
E) Ability to minimize isolated files with repeated data
Answer: E
Difficulty: Challenging
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

16) A DBMS makes the:
A) physical database available for different logical views.
B) relational database available for different logical views.
C) physical database available for different analytic views.
D) relational database available for different analytic views.
E) logical database available for different analytic views.
Answer: A
Difficulty: Challenging
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

17) The logical view of a database:
A) displays the organization and structure of data on the physical storage media.
B) includes a digital dashboard.
C) allows the creation of supplementary reports.
D) enables users to manipulate the logical structure of the database.
E) presents data as they would be perceived by end users.
Answer: E
Difficulty: Moderate
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

18) Which of the following is a DBMS for desktop computers?
A) DB2
B) Oracle Database
C) Microsoft SQL Server
D) Microsoft Access
E) Microsoft Exchange
Answer: D
Difficulty: Challenging
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

19) A(n) _____ represent data as two-dimensional tables.
A) non-relational DBMS
B) mobile DBMS
C) relational DBMS
D) hierarchical DBMS
E) object-oriented DBMS
Answer: C
Difficulty: Easy
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

20) Microsoft SQL Server is a(n):
A) DBMS for both desktops and mobile devices.
B) Internet DBMS.
C) desktop relational DBMS.
D) DBMS for midrange computers.
E) DBMS for mobile devices.
Answer: D
Difficulty: Challenging
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

21) In a table for customers, the information about a single customer resides in a single:
A) field.
B) row.
C) column.
D) table.
E) entity.
Answer: B
Difficulty: Easy
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

22) In a relational database, a record is referred to in technical terms as a(n):
A) tuple.
B) table.
C) entity.
D) field.
E) key.
Answer: A
Difficulty: Moderate
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

23) A field identified in a table as holding the unique identifier of the table's records is called the:
A) primary key.
B) key field.
C) primary field.
D) unique ID.
E) primary entity.
Answer: A
Difficulty: Moderate
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

24) A field identified in a record as holding the unique identifier for that record is called the:
A) primary key.
B) key field.
C) primary field.
D) unique ID.
E) key attribute.
Answer: B
Difficulty: Moderate
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

25) In a relational database, the three basic operations used to develop useful sets of data are:
A) select, project, and where.
B) select, join, and where.
C) select, project, and join.
D) where, from, and join.
E) where, find, and select.
Answer: C
Difficulty: Moderate
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

26) The *select* operation:
A) combines relational tables to provide the user with more information than is otherwise available.
B) creates a subset consisting of columns in a table.
C) identifies the table from which the columns will be selected.
D) creates a subset consisting of all records in the file that meet stated criteria.
E) creates a subset consisting of rows in a table.
Answer: D
Difficulty: Easy
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

27) The *join* operation:
A) combines relational tables to provide the user with more information than is otherwise available.
B) identifies the table from which the columns will be selected.
C) creates a subset consisting of columns in a table.
D) organizes elements into segments.
E) creates a subset consisting of rows in a table.
Answer: A
Difficulty: Easy
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

28) The *project* operation:
A) combines relational tables to provide the user with more information than is otherwise available.
B) creates a subset consisting of columns in a table.
C) organizes elements into segments.
D) identifies the table from which the columns will be selected.
E) creates a subset consisting of rows in a table.
Answer: B
Difficulty: Easy
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

29) Microsoft Access's data dictionary displays all of the following information about a field *except* the:
A) size of the field.
B) format of the field.
C) description of the field.
D) type of the field.
E) the organization within the organization that is responsible for maintaining the data.
Answer: E
Difficulty: Challenging
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

30) Which of the following is an automated or manual file that stores information about data elements and data characteristics such as usage, physical representation, ownership, authorization, and security?
A) Data dictionary
B) Data definition diagram
C) Entity-relationship diagram
D) Relationship dictionary
E) Data table
Answer: A
Difficulty: Moderate
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

31) Which of the following is a specialized language that programmers use to add and change data in the database?
A) Data access language
B) Data manipulation language
C) Structured query language
D) Data definition language
E) DBMS
Answer: B
Difficulty: Easy
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

32) Which of the following is the most prominent data manipulation language today?
A) Access
B) DB2
C) SQL
D) Crystal Reports
E) NoSQL
Answer: C
Difficulty: Moderate
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

33) DBMSs typically include report generating tools in order to:
A) retrieve and display data.
B) display data in a more structured and polished format than would be possible just by querying.
C) display data in graphs.
D) perform predictive analysis.
E) analyze the database's performance.
Answer: B
Difficulty: Moderate
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

34) The process of streamlining data to minimize redundancy and awkward many-to-many relationships is called:
A) normalization.
B) data scrubbing.
C) data cleansing.
D) data defining.
E) optimization.
Answer: A
Difficulty: Easy
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

35) A schematic of the entire database that describes the relationships in a database is called a(n):
A) data dictionary.
B) intersection relationship diagram.
C) entity-relationship diagram.
D) data definition diagram.
E) data analysis table.
Answer: C
Difficulty: Moderate
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

36) A one-to-many relationship between two entities is symbolized in a diagram by a line that ends with:
A) one short mark.
B) two short marks.
C) three short marks.
D) a crow's foot.
E) a crow's foot topped by a short mark.
Answer: E
Difficulty: Challenging
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

37) You are creating a database to store temperature and wind data from various airports. Which of the following fields is the most likely candidate to use as the basis for a primary key in the Airport table?
A) Address
B) City
C) Airport code
D) State
E) Day
Answer: C
Difficulty: Moderate
AACSB: Analytical thinking
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

38) Which of the following is *not* one of the benefits of a blockchain database?
A) It enables the ability to use relational databases.
B) It prevents data from being altered retroactively.
C) It allows administrators to manage data more effectively.
D) It enables firms to create and verify translations on a network very rapidly.
E) It provides users with an integrated view of the data.
Answer: D
Difficulty: Challenging
AACSB: Application of knowledge
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

39) The logical and physical views of data are combined into a single view in a DBMS.
Answer: FALSE
Difficulty: Moderate
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

40) Every record in a file should contain at least one key field.
Answer: TRUE
Difficulty: Easy
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

41) NoSQL technologies are used to manage sets of data that require the flexibility of tables and relations.
Answer: FALSE
Difficulty: Easy
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

42) CGI is a DBMS programming language that end users and programmers use to manipulate data in the database.
Answer: FALSE
Difficulty: Easy
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

43) Complicated groupings of data in a relational database need to be adjusted to eliminate awkward many-to-many relationships.
Answer: TRUE
Difficulty: Easy
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

44) A physical view shows data as it is actually organized and structured on the data storage media.
Answer: TRUE
Difficulty: Easy
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

45) DBMS have a data definition capability to specify the structure of the content of the database.
Answer: TRUE
Difficulty: Moderate
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

46) Relational DBMSs use key field rules to ensure that relationships between coupled tables remain consistent.
Answer: FALSE
Difficulty: Challenging
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

47) The small publishing company you work for wants to create a new database for storing information about all of their author contracts. What factors will influence how you design the database?

Answer: Student answers will vary, but should include some assessment of data quality, business processes and user needs, and relationship to existing IT systems. Key points to include are:

Data accuracy when the new data is input, establishing a good data model, determining which data is important and anticipating what the possible uses for the data will be, beyond looking up contract information, technical difficulties linking this system to existing systems, new business processes for data input and handling, and contracts management, determining how end users will use the data, making data definitions consistent with other databases, what methods to use to cleanse the data.

Difficulty: Moderate
AACSB: Analytical thinking
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

48) List and describe three main capabilities or tools of a DBMS.

Answer: A DBMS includes capabilities and tools for organizing, managing, and accessing the data in the database. Its most important capabilities and tools are data definition, data dictionary, and data manipulation language. The data definition capability enables a user to be able to specify the structure of the content of the database. This capability is used to create database tables and to define the characteristics of the fields in each table. The data dictionary is used to store definitions of data elements and their characteristics in the database. In large corporate databases, the data dictionary may capture additional information, such as usage; ownership; authorization; security; and the individuals, business functions, programs, and reports that use each data element.

A data manipulation language, such as SQL, that is used to add, change, delete, and retrieve the data in the database. This language contains commands that permit end users and programming specialists to extract data from the database to satisfy information requests and develop applications.

Difficulty: Moderate
AACSB: Analytical thinking
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

49) Identify and describe three basic operations used to extract useful sets of data from a relational database.

Answer: The select operation creates a subset consisting of all records (rows) in the table that meets stated criteria. The join operation combines relational tables to provide the user with more information than is available in individual tables. The project operation creates a subset consisting of columns in a table, permitting the user to create new tables that contain only the information required.

Difficulty: Moderate
AACSB: Information technology
LO: 6-2: What are the major capabilities of database management systems (DBMS) and why is a relational DBMS so powerful?

50) The term *big data* refers to all of the following *except*:
A) datasets with fewer than a billion records.
B) datasets with unstructured data.
C) machine-generated data (i.e. from sensors).
D) data created by social media (i.e. tweets, Facebook Likes).
E) data from Web traffic.
Answer: A
Difficulty: Challenging
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

51) Which of the following technologies would you use to analyze the social media data collected by a major online retailer?
A) OLAP
B) Data warehouse
C) Data mart
D) Hadoop
E) DBMS
Answer: D
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

52) Which of the following is *not* one of the techniques used in web mining?
A) Content mining
B) Structure mining
C) Server mining
D) Usage mining
E) Data mining
Answer: C
Difficulty: Moderate
AACSB: Reflective thinking
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

53) You work for a retail clothing chain whose primary outlets are in shopping malls and are conducting an analysis of your customers and their preferences. You wish to find out if there are any particular activities that your customers engage in, or the types of purchases made in the month before or after purchasing select items from your store. To do this, you will want to use the data mining software you are using to do which of the following?
A) Identify associations
B) Identify clusters
C) Identify sequences
D) Classify data
E) Create a forecast
Answer: C
Difficulty: Challenging
AACSB: Analytical thinking
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

54) You work for a car rental agency and want to determine what characteristics are shared among your most loyal customers. To do this, you will want to use the data mining software you are using to do which of the following?
A) Identify associations
B) Identify clusters
C) Identify sequences
D) Classify data
E) Create a forecast
Answer: D
Difficulty: Challenging
AACSB: Analytical thinking
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

55) A data lake is composed of:
A) historical data from legacy systems.
B) unstructured and structured data that has not been analyzed.
C) internal and external data sources.
D) historic and current internal data.
E) historic external data.
Answer: B
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

56) All of the following are technologies used to analyze and manage big data *except:*
A) cloud computing.
B) noSQL.
C) in-memory computing.
D) analytic platforms.
E) Hadoop.
Answer: A
Difficulty: Challenging
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

57) A household appliances manufacturer has hired you to help analyze its social media datasets to determine which of its refrigerators are seen as the most reliable. Which of the following tools would you use to analyze this data?
A) Text mining tools
B) Sentiment analysis software
C) Web mining technologies
D) Data mining software
E) Data governance software
Answer: B
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

58) A distributed database:
A) uses predictive analysis.
B) uses SQL.
C) is a database that is stored in multiple physical locations.
D) is a database that is distributed across many business firms.
E) uses Hadoop to process information.
Answer: C
Difficulty: Challenging
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

59) OLAP enables:
A) users to obtain online answers to ad-hoc questions in a rapid amount of time.
B) users to view both logical and physical views of data.
C) programmers to quickly diagram data relationships.
D) programmers to normalize data.
E) users to quickly generate summary reports.
Answer: A
Difficulty: Easy
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

60) Data mining allows users to:
A) quickly compare transaction data gathered over many years.
B) find hidden relationships in data.
C) obtain online answers to ad-hoc questions in a rapid amount of time.
D) summarize massive amounts of data into much smaller, traditional reports.
E) access the vast amounts of data in a data warehouse.
Answer: B
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

61) In the context of data relationships, the term *associations* refers to:
A) events linked over time.
B) patterns that describe a group to which an item belongs.
C) occurrences linked to a single event.
D) undiscovered groupings.
E) relationships between different customers.
Answer: C
Difficulty: Challenging
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

62) _____ tools are used to analyze large unstructured data sets, such as email, memos, and survey responses to discover patterns and relationships.
A) OLAP
B) Text mining
C) In-memory
D) Clustering
E) Classification
Answer: B
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

63) Which of the following enables you to create a script that allows a web server to communicate with a back-end database?
A) CGI
B) HTML
C) Java
D) SQL
E) NoSQL
Answer: A
Difficulty: Easy
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

64) Which of the following is software that handles all application operations between browser-based computers and a company's back-end business applications or databases?
A) Database server software
B) Application server software
C) Web browser software
D) Data mining software
E) Web server software
Answer: B
Difficulty: Easy
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

65) In data mining, which of the following involves using a series of existing values to determine what other future values will be?
A) Associations
B) Sequences
C) Classifications
D) Clustering
E) Forecasting
Answer: E
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

66) In data mining, which of the following involves recognizing patterns that describe the group to which an item belongs by examining existing items and inferring a set of rules?
A) Associations
B) Sequences
C) Classifications
D) Clustering
E) Forecasting
Answer: C
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

67) In data mining, which of the following involves events linked over time?
A) Associations
B) Sequences
C) Classifications
D) Clustering
E) Forecasting
Answer: B
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

68) MongoDB and SimpleDB are both examples of:
A) open source databases.
B) SQL databases.
C) NoSQL databases.
D) cloud databases.
E) big data databases.
Answer: C
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

69) Which of the following would you use to find patterns in user interaction data recorded by a web server?
A) Web usage mining
B) Web server mining
C) Web structure mining
D) Web content mining
E) Web protocol mining
Answer: A
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

70) Spanner is an example of a distributed database.
Answer: TRUE
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

71) Legacy systems are used to populate and update data warehouses.
Answer: TRUE
Difficulty: Easy
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

72) Multiple data marts are combined and streamlined to create a data warehouse.
Answer: FALSE
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

73) You can use OLAP to perform multidimensional data analysis.
Answer: TRUE
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

74) OLAP can manage and handle queries with very large sets of data.
Answer: TRUE
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

75) In-memory computing relies primarily on a computer's disk drives for data storage.
Answer: FALSE
Difficulty: Challenging
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

76) Middleware is an application that transfers information from an organization's internal database to a web server for delivery to a user as part of a web page.
Answer: TRUE
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

77) Implementing a web interface for an organization's internal database usually requires substantial changes to be made to the database.
Answer: FALSE
Difficulty: Easy
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

78) You can manipulate data on a web server by using a CGI script.
Answer: TRUE
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

79) You can use text mining tools to analyze unstructured data, such as memos and legal cases.
Answer: TRUE
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

80) In a client/server environment, a DBMS is located on a dedicated computer called a web server.
Answer: FALSE
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

81) Associations are occurrences linked to multiple events.
Answer: FALSE
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

82) High-speed analytic platforms use both relational and non-relational tools to analyze large datasets.
Answer: TRUE
Difficulty: Moderate
AACSB: Reflective thinking
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

83) You have been hired by a furniture leasing company to implement its first business intelligence systems and infrastructure. To prepare for your initial report, describe the types of data the firm can use to support business intelligence and the systems that you will implement to support both power users and casual users, and explain how these systems or tools work together.
Answer: All types of data can be used for their business intelligence systems, including operational, historical, machine-generated, Web/social data, audio and video data, and external data. The large datasets can be collected in a Hadoop cluster and used by an analytic platform to support power user queries, data mining, OLAP, etc. A data warehouse can be used to house all data, including smaller data sets and operational data, and be used to support casual use, for queries, reports, and digital dashboards, as well as support the analytic platforms. Smaller data marts can be created from the data warehouse to enable faster querying and typical queries from casual users.
Difficulty: Challenging
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

84) Describe the ways in which database technologies could be used by an office stationery supply company to achieve low-cost leadership.
Answer: Sales databases could be used to make the supply chain more efficient and minimize warehousing and transportation costs. You can also use sales databases, as well as text mining and sentiment analysis, to determine what supplies are in demand by which customers and whether needs are different in different geographical areas. Business intelligence databases could be used to predict future trends in office supply needs, to help anticipate demand, and to determine the most efficient methods of transportation and delivery.
Difficulty: Challenging
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

85) Describe the ways in which database technologies could be used by a toy manufacturer to achieve product differentiation.
Answer: Product databases could be made available to customers for greater convenience and ordering online. Databases could be used to track customer preferences and to help anticipate customer desires. Sales databases could also help clients such as toy stores anticipate when they would need to re-supply, providing an additional service. Data mining, Web mining, and sentiment analysis of big data could help anticipate trends in sales or other factors to help determine new services and products to sell to clients.
Difficulty: Challenging
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

86) What makes data mining an important business tool? What types of information does data mining produce? In what type of circumstance would you advise a company to use data mining?
Answer: Data mining is one of the data analysis tools that helps users make better business decisions and is one of the key tools of business intelligence. Data mining allows users to analyze large amounts of data and find hidden relationships between data that otherwise would not be discovered. For example, data mining might find that a customer that buys product X is ten times more likely to buy product Y than other customers.
Data mining finds information such as:
• Associations or occurrences that are linked to a single event.
• Sequences, events that are linked over time.
• Classification, patterns that describe the group to which an item belongs, found by examining existing items that have been classified and by inferring a set of rules.
• Clusters, unclassified but related groups.
I would advise a company to use data mining when they are looking for new products and services, or when they are looking for new marketing techniques or new markets. Data mining might also be helpful when trying to analyze unanticipated problems with sales whose causes are difficult to identify.
Difficulty: Challenging
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

87) What are the differences between data mining and OLAP? When would you advise a company to use OLAP?
Answer: Data mining uncovers hidden relationships and is used when you are trying to discover data and new relationships. It is used to answer questions such as: Are there any product sales that are related in time to other product sales?
In contrast, OLAP is used to analyze multiple dimensions of data and is used to find answers to complex, but known, questions, such as: What were sales of a product—broken down by month and geographical region, and how did those sales compare to sales forecasts?
Difficulty: Moderate
AACSB: Information technology
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

88) What are the similarities and differences between a data warehouse and a data mart?
Answer: A data warehouse stores current and historical data of potential interest throughout a company. Data warehouses gather data from multiple operational systems inside the organization. Data warehouses make data available, but do not allow that information to be altered. Data marts are subsets of data warehouses, in which a highly focused portion of an organization's data is placed in a separate database for specific users. Data marts are decentralized, whereas data warehouses are enterprise-wide, central locations for data.
Difficulty: Moderate
AACSB: Application of knowledge; Written and oral communication
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

89) Explain what the term *big data* refers to. What benefits does it have, and what challenges does it pose?
Answer: The term *big data* is used to describe datasets with volumes so huge that they are beyond the ability of typical DBMS to capture, store, and analyze. Big data is created by the explosion of data coming from the Web, such as Web traffic, e-mail, Twitter, and Facebook, as well as information from other electronic and networked devices such as sensors and meters. Businesses are interested in big data because it contains more patterns and interesting anomalies than smaller data sets, with the potential to provide new insights into customer behavior, weather patterns, financial market activity, or other phenomena. However, to derive business value from big data, organizations need new technologies and tools capable of managing and analyzing non-traditional data along with their traditional enterprise data. They also need to know what questions to ask of the data and the limitations of big data. Capturing, storing, and analyzing big data can be expensive, and information from big data may not necessarily help decision-makers.
Difficulty: Challenging
AACSB: Application of knowledge; Written and oral communication
LO: 6-3: What are the principal tools and technologies for accessing information from databases to improve business performance and decision making?

90) An organization's rules for sharing, disseminating, acquiring, standardizing, classifying, and inventorying information is called a(n):
A) information policy.
B) data definition file.
C) data quality audit.
D) data governance policy.
E) data policy.
Answer: A
Difficulty: Moderate
AACSB: Information technology
LO: 6-4: Why are information policy, data administration, and data quality assurance essential for managing the firm's data resources?

91) In a large organization, which of the following functions would be responsible for physical database design and maintenance?
A) Data administration
B) Database administration
C) Information policy administration
D) Data auditing
E) Database management
Answer: B
Difficulty: Easy
AACSB: Information technology
LO: 6-4: Why are information policy, data administration, and data quality assurance essential for managing the firm's data resources?

92) Detecting and correcting data in a database or file that are incorrect, incomplete, improperly formatted, or redundant is called:
A) data auditing.
B) defragmentation.
C) data scrubbing.
D) data optimization.
E) data normalization.
Answer: C
Difficulty: Easy
AACSB: Information technology
LO: 6-4: Why are information policy, data administration, and data quality assurance essential for managing the firm's data resources?

93) Data cleansing not only corrects errors but also:
A) establishes logical relationships between data.
B) structures data.
C) normalizes data.
D) removes duplicate data.
E) enforces consistency among different sets of data.
Answer: E
Difficulty: Moderate
AACSB: Information technology
LO: 6-4: Why are information policy, data administration, and data quality assurance essential for managing the firm's data resources?

94) Which of the following is *not* a method for performing a data quality audit?
A) Surveying entire data files
B) Surveying samples from data files
C) Surveying data definition and query files
D) Surveying end users about their perceptions of data quality
E) Surveying managers about their perceptions of data quality
Answer: C
Difficulty: Challenging
AACSB: Analytical thinking
LO: 6-4: Why are information policy, data administration, and data quality assurance essential for managing the firm's data resources?

95) In a large organization, which of the following functions would be responsible for policies and procedures for managing internal data resources?
A) Data administration
B) Database administration
C) Information policy administration
D) Data auditing
E) Database management
Answer: A
Difficulty: Moderate
AACSB: Information technology
LO: 6-4: Why are information policy, data administration, and data quality assurance essential for managing the firm's data resources?

96) The term *data governance* refers to the policies and processes for managing the integrity and security of data in a firm.
Answer: TRUE
Difficulty: Moderate
AACSB: Information technology
LO: 6-4: Why are information policy, data administration, and data quality assurance essential for managing the firm's data resources?

97) Data scrubbing is a more intensive corrective process than data cleansing.
Answer: FALSE
Difficulty: Easy
AACSB: Information technology
LO: 6-4: Why are information policy, data administration, and data quality assurance essential for managing the firm's data resources?

98) List three ways that a business's data can become redundant or inconsistent.
Answer: Data redundancy and inconsistency can occur because of (1) employing different names and descriptions for the same entities or attributes; (2) multiple systems feeding a data warehouse; (3) incorrect data entry.
Difficulty: Moderate
AACSB: Application of knowledge; Written and oral communication
LO: 6-4: Why are information policy, data administration, and data quality assurance essential for managing the firm's data resources?

99) Distributors for a furniture manufacturer are complaining that the billing for goods they order is frequently not correct, and sometimes are sent to the wrong e-mail and postal addresses. What steps would you take to improve the quality of data in the manufacturer's databases?
Answer: The first step is to perform a data quality audit, a survey of the accuracy and level of completeness in all the firm's major databases. Once issues are identified, initiate a program for data cleansing to correct data that is incomplete, improperly formatted, redundant, or just plain wrong.
Difficulty: Moderate
AACSB: Application of knowledge; Written and oral communication
LO: 6-4: Why are information policy, data administration, and data quality assurance essential for managing the firm's data resources?

100) What is an information policy and why is it needed in a firm?
Answer: An information policy specifies the organization's rules for sharing, disseminating, acquiring, standardizing, classifying, and inventorying information. Information policy lays out specific procedures and accountabilities, identifying which users and organizational units can share information, where information can be distributed, and who is responsible for updating and maintaining the information.
An information policy is needed in firms because data are an important resource, and you don't want people doing whatever they want with them. You need to have rules on how the data are to be organized and maintained and who is allowed to view the data or change them.
Difficulty: Moderate
AACSB: Application of knowledge; Written and oral communication
LO: 6-4: Why are information policy, data administration, and data quality assurance essential for managing the firm's data resources?