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| True / False |

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| 1. Data and information are essentially the same thing.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-2 Data versus Information | | *LEARNING OBJECTIVES:* | 01.01 - Define the difference between data and information | |

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| 2. Data processing can be as simple as organizing data to reveal patterns.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-2 Data versus Information | | *LEARNING OBJECTIVES:* | 01.01 - Define the difference between data and information | |

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| 3. Data is the result of processing raw facts to reveal its meaning.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-2 Data versus Information | | *LEARNING OBJECTIVES:* | 01.01 - Define the difference between data and information | |

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| 4. When data are entered into a form and saved, they are placed in the underlying database as knowledge.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-2 Data versus Information | | *LEARNING OBJECTIVES:* | 01.01 - Define the difference between data and information | |

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| 5. Data constitute the building blocks of information.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-2 Data versus Information | | *LEARNING OBJECTIVES:* | 01.01 - Define the difference between data and information | |

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| 6. Metadata describe the data characteristics and the set of relationships that links the data found within the database.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3 Introducing the Database | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 7. The only way to access the data in a database is through the DBMS.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-3a Role and Advantages of the DBMS | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 8. Database programming languages receive all application requests and translate them into the complex operations required to fulfill those requests.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-3a Role and Advantages of the DBMS | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 9. The DBMS reveals much of the database’s internal complexity to the application programs and users.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-3a Role and Advantages of the DBMS | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 10. One disadvantage of the DBMS is that it increases the risk of data security breaches.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3a Role and Advantages of the DBMS | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 11. An operational database is sometimes referred to as an enterprise database.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3b Types of Databases | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 12. A data warehouse can store data derived from many sources.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3b Types of Databases | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 13. Structure is based on the type of processing to be performed on the data.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-3b Types of Databases | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 14. Corporations use only structured data.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-3b Types of Databases | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 15. Field refers to a collection of related records.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-5b Computerized File Systems | | *LEARNING OBJECTIVES:* | 01.04 - See how modern databases evolved from file systems | |

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| 16. Structural dependence exists when it is possible to make changes in the file structure without affecting the application program’s ability to access the data.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-6a Structural and Data Dependence | | *LEARNING OBJECTIVES:* | 01.05 - Understand flaws in file system data management | |

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| 17. One disadvantage of a database system over previous data management approaches is increased costs.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-7c Managing the Database System: A Shift in Focus | | *LEARNING OBJECTIVES:* | 01.05 - Understand flaws in file system data management | |

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| 18. Data anomaly is defined as the condition in which all of the data in the database are consistent with the real-world events and conditions.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-6b Data Redundancy | | *LEARNING OBJECTIVES:* | 01.05 - Understand flaws in file system data management | |

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| 19. An advantage of database systems is that you needn't perform frequent updates and apply latest patches.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-7c Managing the Database System: A Shift in Focus | | *LEARNING OBJECTIVES:* | 01.06 - Outline the main components of the database system | |

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| 20. One advantage of a database system over previous data management approaches is that the database system is considerably less complex.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-7c Managing the Database System: A Shift in Focus | | *LEARNING OBJECTIVES:* | 01.06 - Outline the main components of the database system | |

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| Multiple Choice |

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| 21. \_\_\_\_\_ is the result of revealing the meaning of raw facts.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | End-user data | b. | An encoded sample | |  | c. | An encrypted bit | d. | Information |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-2 Data versus Information | | *LEARNING OBJECTIVES:* | 01.01 - Define the difference between data and information | |

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| 22. \_\_\_\_\_ is the body of information and facts about a specific subject.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | Validation | b. | A format | |  | c. | Knowledge | d. | A database |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-2 Data versus Information | | *LEARNING OBJECTIVES:* | 01.01 - Define the difference between data and information | |

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| 23. Accurate, relevant, and timely information is the key to \_\_\_\_.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | data management | b. | good decision making | |  | c. | knowledge | d. | understanding |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-2 Data versus Information | | *LEARNING OBJECTIVES:* | 01.01 - Define the difference between data and information | |

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| 24. End-user data is \_\_\_\_\_.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | knowledge about the end users | b. | raw facts of interest to the end user | |  | c. | information about a specific subject | d. | accurate, relevant and timely information |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3 Introducing the Database | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 25. \_\_\_\_\_ provide a description of the data characteristics and the set of relationships that link the data found within the database.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | Queries | b. | End-user data | |  | c. | Metadata | d. | Schemas |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3 Introducing the Database | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 26. \_\_\_\_\_ serve as the intermediary between the user and the database.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | DBMSs | b. | Metadata | |  | c. | End-user data | d. | Programming languages |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3a Role and Advantages of the DBMS | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 27. The database structure in a DBMS is stored as a \_\_\_\_\_.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | single file | b. | collection of files | |  | c. | set of key/value pairs | d. | collection of queries |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3a Role and Advantages of the DBMS | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 28. A(n) \_\_\_\_\_ might be written by a programmer or it might be created through a DBMS utility program.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | query | b. | operating system | |  | c. | database management system | d. | application |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3a Role and Advantages of the DBMS | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 29. \_\_\_\_\_ exists when different versions of the same data appear in different places.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | Data inconsistency | b. | Poor data security | |  | c. | Structural dependence | d. | Conceptual dependence |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3a Role and Advantages of the DBMS | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 30. The response of the DBMS to a query is the \_\_\_\_\_\_\_\_\_\_\_   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | ad hoc query | b. | ad hoc response | |  | c. | query result set | d. | integrated view of the data |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3a Role and Advantages of the DBMS | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 31. A(n) \_\_\_\_\_ database is used by an organization and supports many users across many departments.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | desktop | b. | workgroup | |  | c. | enterprise | d. | transactional |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3b Types of Databases | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 32. A(n) \_\_\_\_\_ database supports a relatively small number of users (usually fewer than 50) or a specific department within an organization.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | desktop | b. | workgroup | |  | c. | enterprise | d. | transactional |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3b Types of Databases | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 33. A workgroup database is a(n) \_\_\_\_\_ database.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | single-user | b. | multiuser | |  | c. | desktop | d. | distributed |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3b Types of Databases | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 34. A desktop database is a \_\_\_\_\_ database.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | single-user | b. | multiuser | |  | c. | workgroup | d. | distributed |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3b Types of Databases | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 35. A data warehouse contains historical data obtained from the \_\_\_\_\_.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | operational databases | b. | desktop database | |  | c. | enterprise databases | d. | workgroup databases |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3b Types of Databases | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 36. \_\_\_\_\_ data exist in the format in which they were collected.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | Structured | b. | Semistructured | |  | c. | Unstructured | d. | Historical |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3b Types of Databases | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 37. \_\_\_\_\_ data exist in a format that does not lend itself to processing that yields information.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | Structured | b. | Semistructured | |  | c. | Unstructured | d. | Historical |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3b Types of Databases | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 38. \_\_\_\_\_ are the result of formatting disorganized data in order to facilitate storage, use and generation of information.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | Structured data | b. | Raw data | |  | c. | Unstructured data | d. | Obsolete data |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3b Types of Databases | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 39. Most data that can be encountered are best classified as \_\_\_\_\_.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | structured | b. | semistructured | |  | c. | unstructured | d. | historical |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3b Types of Databases | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 40. An XML database supports the storage and management of \_\_\_\_\_ XML data.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | structured | b. | multistructured | |  | c. | fullystructured | d. | semistructured |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3b Types of Databases | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 41. The organization of data within folders in a manual file system is determined by \_\_\_\_\_\_\_.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | its date of creation | b. | its expected use | |  | c. | the title of the documents in the folder | d. | the data processing specialist |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-5a Manual File Systems | | *LEARNING OBJECTIVES:* | 01.04 - See how modern databases evolved from file systems | |

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| 42. A \_\_\_\_\_ is a logically connected set of one or more fields that describes a person, place, or thing.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | database | b. | column | |  | c. | record | d. | file |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-5b Computerized File Systems | | *LEARNING OBJECTIVES:* | 01.04 - See how modern databases evolved from file systems | |

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| 43. A \_\_\_\_\_ is a collection of related records.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | schema | b. | field | |  | c. | column | d. | file |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-5b Computerized File Systems | | *LEARNING OBJECTIVES:* | 01.04 - See how modern databases evolved from file systems | |

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| 44. A \_\_\_\_\_ is a character or group of characters that has a specific meaning.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | database | b. | field | |  | c. | record | d. | file |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-5b Computerized File Systems | | *LEARNING OBJECTIVES:* | 01.04 - See how modern databases evolved from file systems | |

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| 45. Which of the following is true of spreadsheet applications?   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | They provide enhanced security and robust data sharing features. | b. | They do not allow manipulation of data once entered. | |  | c. | They are a better alternative to databases. | d. | They enhance the user's ability to understand the data. |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-5c File System Redux: Modern End-User Productivity | | *LEARNING OBJECTIVES:* | 01.04 - See how modern databases evolved from file systems | |

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| 46. Which of the following refers to the situation where different versions of the same data are stored at different places because they weren’t updated consistently?   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | Data query | b. | Data integrity | |  | c. | Data dictionary | d. | Data redundancy |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-6b Data Redundancy | | *LEARNING OBJECTIVES:* | 01.05 - Understand flaws in file system data management | |

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| 47. Data is said to be verifiable if:   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | the data always yields consistent results. | b. | the data cannot be changed or manipulated. | |  | c. | the data is obtained from trusted sources. | d. | the data is stored in different places within the database. |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-6b Data Redundancy | | *LEARNING OBJECTIVES:* | 01.05 - Understand flaws in file system data management | |

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| 48. \_\_\_\_\_ is defined as the condition in which all of the data in the database are consistent with the real-world events and conditions.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | Data integrity | b. | Data anomaly | |  | c. | Data ubiquity | d. | Data quality |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-6b Data Redundancy | | *LEARNING OBJECTIVES:* | 01.05 - Understand flaws in file system data management | |

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| 49. The term \_\_\_\_\_ refers to an organization of components that define and regulate the collection, storage, management and use of data within a database environment.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | structured data | b. | transaction | |  | c. | management system | d. | database system |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-7a The Database System Environment | | *LEARNING OBJECTIVES:* | 01.06 - Outline the main components of the database system | |

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| 50. \_\_\_\_\_ relates to the activities that make the database execute transactions more efficiently in terms of storage and access speed.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | Performance tuning | b. | Database design | |  | c. | Query access | d. | Database management |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-7b DBMS Functions | | *LEARNING OBJECTIVES:* | 01.06 - Outline the main components of the database system | |

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| 51. \_\_\_\_\_ is the result of processing raw data to reveal its meaning.   |  |  | | --- | --- | | *ANSWER:* | Information | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-2 Data versus Information | | *LEARNING OBJECTIVES:* | 01.01 - Define the difference between data and information | |

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| 52. To reveal meaning, information requires \_\_\_\_\_.   |  |  | | --- | --- | | *ANSWER:* | context | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-2 Data versus Information | | *LEARNING OBJECTIVES:* | 01.01 - Define the difference between data and information | |

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| 53. Raw data must be properly \_\_\_\_\_ for storage, processing and presentation.   |  |  | | --- | --- | | *ANSWER:* | formatted | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-2 Data versus Information | | *LEARNING OBJECTIVES:* | 01.01 - Define the difference between data and information | |

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| 54. Information is produced by processing \_\_\_\_\_.   |  |  | | --- | --- | | *ANSWER:* | data | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-2 Data versus Information | | *LEARNING OBJECTIVES:* | 01.01 - Define the difference between data and information | |

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| 55. \_\_\_\_\_ is data about data through which the end-user data are integrated and managed.   |  |  | | --- | --- | | *ANSWER:* | Metadata | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3 Introducing the Database | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 56. A(n) \_\_\_\_\_ is a collection of programs that manages the database structure and controls access to the data stored in the database.   |  |  | | --- | --- | | *ANSWER:* | DBMS (database management system)  database management system (DBMS)  database management system  DBMS | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3 Introducing the Database | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 57. A(n) \_\_\_\_\_ is a spur-of-the-moment question.   |  |  | | --- | --- | | *ANSWER:* | ad hoc query | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-3a Role and Advantages of the DBMS | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 58. A(n) \_\_\_\_\_ is a specific request issued to the DBMS for data manipulation.   |  |  | | --- | --- | | *ANSWER:* | query | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3a Role and Advantages of the DBMS | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 59. \_\_\_\_\_ databases focus primarily on storing data used to generate information required to make tactical or strategic decisions.   |  |  | | --- | --- | | *ANSWER:* | Analytical | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3b Types of Databases | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 60. \_\_\_\_\_ is a special language used to represent and manipulate data elements in a textual format.   |  |  | | --- | --- | | *ANSWER:* | XML (Extensible Markup Language)  Extensible Markup Language (XML)  Extensible Markup Language  XML | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3b Types of Databases | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 61. \_\_\_\_\_ exists when it is possible to make changes in the data storage characteristics without affecting an application program’s ability to access data.   |  |  | | --- | --- | | *ANSWER:* | Data independence | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-6a Structural and Data Dependence | | *LEARNING OBJECTIVES:* | 01.05 - Understand flaws in file system data management | |

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| 62. The term \_\_\_\_\_ refers to scattered locations storing the same basic data.   |  |  | | --- | --- | | *ANSWER:* | islands of information | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-6b Data Redundancy | | *LEARNING OBJECTIVES:* | 01.05 - Understand flaws in file system data management | |

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| 63. \_\_\_\_\_ exists when different and conflicting versions of the same data appear in different places.   |  |  | | --- | --- | | *ANSWER:* | Data inconsistency | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-6b Data Redundancy | | *LEARNING OBJECTIVES:* | 01.05 - Understand flaws in file system data management | |

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| 64. \_\_\_\_\_ exists when the same data are stored unnecessarily at different places.   |  |  | | --- | --- | | *ANSWER:* | Data redundancy | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-6b Data Redundancy | | *LEARNING OBJECTIVES:* | 01.05 - Understand flaws in file system data management | |

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| 65. A(n) \_\_\_\_\_ develops when all required changes in the redundant data are not made successfully.   |  |  | | --- | --- | | *ANSWER:* | data anomaly  anomaly | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-6c Data Anomalies | | *LEARNING OBJECTIVES:* | 01.05 - Understand flaws in file system data management | |

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| 66. The DBMS uses the \_\_\_\_\_ to look up the required data component structures and relationships, thus relieving programmers from having to code such complex relationships in each program.   |  |  | | --- | --- | | *ANSWER:* | data dictionary | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-7b DBMS Functions | | *LEARNING OBJECTIVES:* | 01.06 - Outline the main components of the database system | |

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| 67. \_\_\_\_\_ relates to activities that make a database operate more efficiently in terms of storage and access speed.   |  |  | | --- | --- | | *ANSWER:* | Performance tuning | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-7b DBMS Functions | | *LEARNING OBJECTIVES:* | 01.06 - Outline the main components of the database system | |

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| 68. Web and mobile technologies that enable “anywhere, anytime, always on” human interactions are forms of \_\_\_\_\_.   |  |  | | --- | --- | | *ANSWER:* | social media | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3b Types of Databases | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 69. A database that is created and maintained using services such as Microsoft Azure or Amazon AWS is called a(n) \_\_\_\_\_ database.   |  |  | | --- | --- | | *ANSWER:* | cloud | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-3b Types of Databases | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 70. When a database stores the majority of data in RAM rather than in hard disks, it is referred to as a(n) \_\_\_\_\_ database.   |  |  | | --- | --- | | *ANSWER:* | in-memory | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1-8 Preparing for Your Database Professional | | *LEARNING OBJECTIVES:* | 01.07 - Describe the main functions of a database management system (DBMS) | |

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| 71. Describe what metadata are and what value they provide to the database system.   |  |  | | --- | --- | | *ANSWER:* | The metadata describe the data characteristics and the set of relationships that links the data found within the database. For example, the metadata component stores information such as the name of each data element, the type of values (numeric, dates, or text) stored on each data element, and whether the data element can be left empty. The metadata provide information that complements and expands the value and use of the data. In short, metadata present a more complete picture of the data in the database. Given the characteristics of metadata, you might hear a database described as a “collection of self-describing data.” | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-3 Introducing the Database | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 72. What are the advantages of having the DBMS between the end user’s applications and the database?   |  |  | | --- | --- | | *ANSWER:* | Having a DBMS between the end user’s applications and the database offers some important advantages. First, the DBMS enables the data in the database to be shared among multiple applications or users. Second, the DBMS integrates the many different users’ views of the data into a single all-encompassing data repository. | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-3a Role and Advantages of the DBMS | | *LEARNING OBJECTIVES:* | 01.02 - Describe what a database is, the various types of databases, and why they are valuable assets for decision making | |

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| 73. Discuss some considerations when designing a database.   |  |  | | --- | --- | | *ANSWER:* | Proper database design requires the designer to identify precisely the database’s expected use. Designing a transactional database emphasizes accurate and consistent data and operational speed. Designing a data warehouse database emphasizes the use of historical and aggregated data. Designing a database to be used in a centralized, single-user environment requires a different approach from that used in the design of a distributed, multiuser database.  ​  Designing appropriate data repositories of integrated information using the two-dimensional table structures found in most databases is a process of decomposition. The integrated data must be decomposed properly into its constituent parts, with each part stored in its own table. Further, the relationships between these tables must be carefully considered and implemented so the integrated view of the data can be re-created later as information for the end user. A well-designed database facilitates data management and generates accurate and valuable information. A poorly designed database is likely to become a breeding ground for difficult-to-trace errors that may lead to bad decision making—and bad decision making can lead to the failure of an organization. Database design is simply too important to be left to luck. That’s why college students study database design, why organizations of all types and sizes send personnel to database design seminars, and why database design consultants often make an excellent living. | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-4 Why Database Design Is Important | | *LEARNING OBJECTIVES:* | 01.03 - Explain the importance of database design | |

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| 74. What are the problems associated with file systems? How do they challenge the types of information that can be created from the data as well as the accuracy of the information?   |  |  | | --- | --- | | *ANSWER:* | The following problems associated with file systems, whether created by DP specialists or through a series of spread-sheets, severely challenge the types of information that can be created from the data as well as the accuracy of the information:   * *Lengthy development times.* The first and most glaring problem with the file system approach is that even the simplest data-retrieval task requires extensive programming. With the older file systems, programmers had to specify what must be done and how to do it. * *Difficulty of getting quick answers.* The need to write programs to produce even the simplest reports makes ad hoc queries impossible. Harried DP specialists who worked with mature file systems often received numerous requests for new reports. They were often forced to say that the report will be ready “next week” or even “next month.” If you need the information now, getting it next week or next month will not serve your information needs. * *Complex system administration.* System administration becomes more difficult as the number of files in the system expands. Even a simple file system with a few files requires creating and maintaining several file management programs. Each file must have its own file management programs that allow the user to add, modify, and delete records; to list the file contents; and to generate reports. Because ad hoc queries are not possible, the file reporting programs can multiply quickly. The problem is compounded by the fact that each department in the organization “owns” its data by creating its own files. * *Lack of security and limited data sharing.* Another fault of a file system data repository is a lack of security and limited data sharing. Data sharing and security are closely related. Sharing data among multiple geographically dispersed users introduces a lot of security risks. In terms of spreadsheet data, while many spreadsheet programs provide rudimentary security options, they are not always used, and even when they are, they are insufficient for robust data sharing among users. In terms of creating data management and reporting programs, security and data-sharing features are difficult to program and consequently are often omitted from a file system environment. Such features include effective password protection, the ability to lock out parts of files or parts of the system itself, and other measures designed to safeguard data confidentiality. Even when an attempt is made to improve system and data security, the security devices tend to be limited in scope and effectiveness. * *Extensive programming.* Making changes to an existing file structure can be difficult in a file system environment. | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-6 Problems with File System Data Processing | | *LEARNING OBJECTIVES:* | 01.05 - Understand flaws in file system data management | |

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| 75. Discuss any three functions performed by the DBMS that guarantee the integrity and consistency of the data in the database.   |  |  | | --- | --- | | *ANSWER:* | (answers may vary)   * *Data dictionary management*. The DBMS stores definitions of the data elements and their relationships (metadata) in a data dictionary. In turn, all programs that access the data in the database work through the DBMS. The DBMS uses the data dictionary to look up the required data component structures and relationships, thus relieving you from having to code such complex relationships in each program. Additionally, any changes made in a database structure are automatically recorded in the data dictionary, thereby freeing you from having to modify all of the programs that access the changed structure. In other words, the DBMS provides data abstraction, and it removes structural and data dependence from the system. * *Data storage management*. The DBMS creates and manages the complex structures required for data stor-age, thus relieving you from the difficult task of defining and programming the physical data characteristics. A modern DBMS provides storage not only for the data but for related data-entry forms or screen definitions, report definitions, data validation rules, procedural code, structures to handle video and picture formats, and so on. Data storage management is also important for database performance tuning. Performance tuning relates to the activities that make the database perform more efficiently in terms of storage and access speed. Although the user sees the database as a single data storage unit, the DBMS actually stores the database in multiple physical data files. Such data files may even be stored on different storage media. Therefore, the DBMS doesn’t have to wait for one disk request to finish before the next one starts. In other words, the DBMS can fulfill database requests concurrently. * *Data transformation and presentation*. The DBMS transforms entered data to conform to required data structures. The DBMS relieves you of the chore of distinguishing between the logical data format and the physical data format. That is, the DBMS formats the physically retrieved data to make it conform to the user’s logical expectations. * *Security management*. The DBMS creates a security system that enforces user security and data privacy. Security rules determine which users can access the database, which data items each user can access, and which data operations (read, add, delete, or modify) the user can perform. This is especially important in multiuser database systems. | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1-7b DBMS Functions | | *LEARNING OBJECTIVES:* | 01.07 - Describe the main functions of a database management system (DBMS) | |