|  |
| --- |
| True / False |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. Database connectivity software is also known as database middleware because it interfaces between the application program and the database.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-1 Database Connectivity | | *LEARNING OBJECTIVES:* | 15.01 - Explain the purpose of standard database connectivity interfaces | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2. A good API makes it easy to develop a program by providing all of the building blocks.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-1b ODBC, DAO, and RDO | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3. Having a web-based database interface eliminates the design and implementation issues of a database system.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2 Database Internet Connectivity | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4. Whether you purchase online or by standing in line, the system-level transaction details are essentially the same, and they require the same basic database structures and relationships.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2 Database Internet Connectivity | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5. The effects of bad database design, implementation, and management are magnified in an environment in which the number of transactions is less than one hundred.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2 Database Internet Connectivity | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6. The benefits of the web as a data access platform arise from its cross-platform functionality and the simplicity of its interface.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2 Database Internet Connectivity | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7. When an end user uses a web browser to dynamically query a database, the client browser actually requests a web page from the web server.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2a Web-to-Database Middleware: Server-Side Extensions | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8. In the database query scenario, the web server generates the webpage contents before it sends the page to the client web browser.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-2a Web-to-Database Middleware: Server-Side Extensions | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9. Extending the web server functionality implies that the web server and the web-to-database middleware will properly communicate with each other.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2b Web Server Interfaces | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10. The Common Gateway Interface (CGI) is a newer web server interface standard that is much more efficient and faster than a dynamic link library (DLL).   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-2b Web Server Interfaces | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11. An application programming interface (API) uses script files that perform specific functions based on the client’s parameters that are passed to the web server.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-2b Web Server Interfaces | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12. The browser’s interpretation and presentation capabilities are sufficient to develop web-based applications.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2c The Web Browser | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13. The label “stateless system” indicates that, at any given time, there is an open communication line between the server and each client accessing it.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2c The Web Browser | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14. The only time the client and server computers communicate is when the client requests a page and the server sends the requested page to the client.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2c The Web Browser | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15. The use of HTML does not equip a web browser with computational abilities beyond formatting output text and accepting form field inputs.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-2c The Web Browser | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16. A plug-in is an external application that is automatically invoked by a web browser when needed.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2d Client-Side Extensions | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17. A client-side extension is a program that interacts directly with the web server to handle specific types of requests.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2d Client-Side Extensions | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18. A document type definition (DTD) can be referenced by many Extensible Markup Language (XML) documents of the same type.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-3a Document Type Definitions (DTD) and XML Schemas | | *LEARNING OBJECTIVES:* | 12.05 - Explain how Extensible Markup Language (XML) is used for web database development | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19. HTML is designed to facilitate the extraction and manipulation of data from structured documents over the Internet.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-3 Extensible Markup Language (XML) | | *LEARNING OBJECTIVES:* | 15.05 - Explain how Extensible Markup Language (XML) is used for web database development | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20. The first line of an XML document represents the document declaration, and it is mandatory.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-3 Extensible Markup Language (XML) | | *LEARNING OBJECTIVES:* | 15.05 - Explain how Extensible Markup Language (XML) is used for web database development | |

|  |
| --- |
| Multiple Choice |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21. \_\_\_\_\_ is a collection of technologies used to access any type of data source and manage the data through a common interface.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | DAO | b. | UDA | |  | c. | ODBC | d. | OLE-DB |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-1 Database Connectivity | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22. ODBC works on the \_\_\_\_\_ operating system.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | Kronos | b. | UNIX | |  | c. | Windows | d. | Mac |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-1b ODBC, DAO, and RDO | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23. \_\_\_\_\_ is a higher-level, object-oriented application interface used to access remote database servers.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | UDA | b. | ODBC | |  | c. | DAO | d. | RDO |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-1b ODBC, DAO, and RDO | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24. In the ODBC architecture, a(n) \_\_\_\_\_ is in charge of managing all database connections.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | ODBC API | b. | DLL | |  | c. | ODBC driver | d. | driver manager |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-1b ODBC, DAO, and RDO | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25. The ODBC API standard defines three levels of compliance: \_\_\_\_\_, Level-1, and Level-2, which provide increasing levels of functionality.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | Elementary | b. | Basic | |  | c. | Core | d. | Level-0 |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-1b ODBC, DAO, and RDO | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 26. Based on Microsoft’s Component Object Model (COM), \_\_\_\_\_ is database middleware that adds object-oriented functionality for access to relational and nonrelational data.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | MS-DB | b. | OLE-DB | |  | c. | COM-DB | d. | ODBC |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-1c OLE-DB | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27. In the ADO.NET framework, the \_\_\_\_\_ object contains the actual SQL code or a stored procedure call to be run by the database.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | Command | b. | DataReader | |  | c. | DataAdapter | d. | DataSet |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-1d ADO.NET | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28. In the ADO.NET framework, the \_\_\_\_\_ is a disconnected, memory-resident representation of the database.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | Command | b. | DataReader | |  | c. | DataAdapter | d. | DataSet |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-1d ADO.NET | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29. The \_\_\_\_\_ is the most specialized object in the ADO.NET framework.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | Command | b. | DataReader | |  | c. | DataAdapter | d. | DataSet |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-1d ADO.NET | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30. \_\_\_\_\_ is an object-oriented programming language developed by Sun Microsystems that runs on top of web browser software.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | Visual Basic | b. | Java | |  | c. | JavaScript | d. | VBScript |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-1e Java Database Connectivity (JDBC) | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 31. One of the advantages of \_\_\_\_\_ over other middleware is that it requires no configuration on the client side.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | ODBC | b. | JDBC | |  | c. | OLE-DB | d. | ADO.NET |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-1e Java Database Connectivity (JDBC) | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 32. Another name for a database server-side extension program is \_\_\_\_\_.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | web server | b. | web application middleware | |  | c. | web-to-database middleware | d. | database application server |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2a Web-to-Database Middleware: Server-Side Extensions | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 33. Which of the following is a well-defined web-server interface?   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | Common Gateway Interface | b. | Tiny Internet Interface | |  | c. | Windows NT | d. | Command Line Interface |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2b Web Server Interfaces | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 34. The main disadvantage of using CGI scripts is that:   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | they cause a resource bottleneck since they have to execute separately for each user request. | b. | they are specific to the web server and to the operating system, thus being platform dependent. | |  | c. | an error in one script can damage and bring down the web server completely. | d. | they do not have the capability to process forms or prepare outputs based on form data. |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-2b Web Server Interfaces | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 35. A(n) \_\_\_\_\_ can use a shared connection to the database instead of creating a new one every time.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | DLL | b. | API | |  | c. | web browser | d. | HTTP GET request |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-2b Web Server Interfaces | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 36. What is a disadvantage of using an API web-server interface?   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | It is slower than CGI scripts. | b. | It is inefficient because it uses DLLs. | |  | c. | An external program needs to run for each user request. | d. | An API error can bring down the entire web server. |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-2b Web Server Interfaces | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 37. Each time an end user clicks a hyperlink, the browser generates a(n) \_\_\_\_\_ page request that is sent to the designated web server using the TCP/IP Internet protocol.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | HTML | b. | XML | |  | c. | HTTP GET | d. | API |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2c The Web Browser | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 38. The web browser’s job is to interpret the HTML code that it receives from a web server and to:   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | develop web-based applications. | b. | display it in a standard formatted way. | |  | c. | perform immediate data entry validation. | d. | extract details, such as order data, from it. |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2c The Web Browser | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 39. You must use plug-ins and other client-side extensions to:   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | create an open communication line between a server and its clients. | b. | eliminate the need for running external programs for each client request. | |  | c. | improve processing capabilities of a browser. | d. | create dynamic web search pages. |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-2c The Web Browser | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 40. Which is a client-side extension?   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | ActiveX | b. | ODBC | |  | c. | SQL\*Net | d. | TCP/IP |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2d Client-Side Extensions | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 41. Among client-side extensions, \_\_\_\_\_ is a Microsoft specification for writing programs that run inside the Internet Explorer browser.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | COBOL | b. | ActiveX | |  | c. | JavaScript | d. | Visor.Net |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2d Client-Side Extensions | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 42. \_\_\_\_\_ is a scripting language that allows web authors to design interactive sites.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | Visual Basic | b. | HTML | |  | c. | JavaScript | d. | Java |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2d Client-Side Extensions | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 43. Which of the following is true of a web application server?   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | It is Microsoft’s implementation of a superset of the SQL Access Group CLI standard for database access. | b. | It is automatically invoked by the browser when needed. | |  | c. | It runs on the client machine, freeing server resources. | d. | It provides security and authentication of users through user IDs and passwords. |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2e Web Application Servers | | *LEARNING OBJECTIVES:* | 15.04 - Identify the services provided by web application servers | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 44. \_\_\_\_\_ code is embedded inside an HTML page and is activated by triggering events such as clicking on a link.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | XML | b. | SQL | |  | c. | Visual Basic | d. | VBScript |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2d Client-Side Extensions | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 45. \_\_\_\_\_ is a web application server that provides the ability to connect web servers to multiple data sources.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | MS Access | b. | ColdFusion/JRun | |  | c. | FoxPro | d. | dBase |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2e Web Application Servers | | *LEARNING OBJECTIVES:* | 15.04 - Identify the services provided by web application servers | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 46. Which of the following is a characteristic of the XML metalanguage?   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | It is concerned with the way data are displayed. | b. | It allows the definition of new tags. | |  | c. | You can use the // symbol for entering a comment in the XML document. | d. | It can be used as a replacement of HTML. |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-3 Extensible Markup Language (XML) | | *LEARNING OBJECTIVES:* | 15.05 - Explain how Extensible Markup Language (XML) is used for web database development | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 47. Every XML document has a \_\_\_\_\_.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | root element | b. | base tag | |  | c. | schema | d. | DTD |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-3 Extensible Markup Language (XML) | | *LEARNING OBJECTIVES:* | 15.05 - Explain how Extensible Markup Language (XML) is used for web database development | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 48. A(n) \_\_\_\_\_ file provides the composition of the database’s logical model and defines the syntax rules for an XML document.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | XMLD | b. | XHTML | |  | c. | DTD | d. | meta |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-3a Document Type Definitions (DTD) and XML Schemas | | *LEARNING OBJECTIVES:* | 15.05 - Explain how Extensible Markup Language (XML) is used for web database development | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 49. The \_\_\_\_\_ is an advanced data definition language that is used to describe the structure of XML data documents.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | XHTML | b. | HTML schema | |  | c. | DTD | d. | XML schema |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-3a Document Type Definitions (DTD) and XML Schemas | | *LEARNING OBJECTIVES:* | 15.05 - Explain how Extensible Markup Language (XML) is used for web database development | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 50. Using \_\_\_\_\_, you can extract data from an XML document and convert it into a text file.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | XMLD | b. | XSLT | |  | c. | DTD | d. | XML schema |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-3b XML Presentation | | *LEARNING OBJECTIVES:* | 15.05 - Explain how Extensible Markup Language (XML) is used for web database development | |

|  |
| --- |
| Completion |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 51. ODBC, OLE-DB, and ADO.NET form the backbone of the \_\_\_\_\_ architecture.   |  |  | | --- | --- | | *ANSWER:* | UDA  Universal Data Access (UDA)  Universal Data Access | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-1 Database Connectivity | | *LEARNING OBJECTIVES:* | 15.01 - Explain the purpose of standard database connectivity interfaces | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 52. Open Database Connectivity (ODBC), a superset of the SQL Access Group Call Level Interface (CLI), is implemented by \_\_\_\_\_.   |  |  | | --- | --- | | *ANSWER:* | Microsoft | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-1b ODBC, DAO, and RDO | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 53. A(n) \_\_\_\_\_ is a unique name by which the data source will be known to ODBC, and therefore, to applications.   |  |  | | --- | --- | | *ANSWER:* | DSN  data source name  data source name (DSN) | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-1b ODBC, DAO, and RDO | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 54. In the context of OLE-DB, a(n) \_\_\_\_\_ is an object (application or process) that requests and uses data.   |  |  | | --- | --- | | *ANSWER:* | consumer | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-1c OLE-DB | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 55. In the OLE-DB model, the \_\_\_\_\_ acts like a data consumer of the data provider and as a data provider for the data consumer (end-user application).   |  |  | | --- | --- | | *ANSWER:* | service provider | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-1c OLE-DB | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 56. A(n) \_\_\_\_\_ is a program written in a programming language that is not compiled, but is interpreted and executed at run time.   |  |  | | --- | --- | | *ANSWER:* | script | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-1c OLE-DB | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 57. \_\_\_\_\_ provides a unified interface to access data from any programming language that uses the underlying OLE-DB objects.   |  |  | | --- | --- | | *ANSWER:* | ActiveX Data Objects  ADO  ActiveX Data Objects (ADO) | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-1c OLE-DB | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 58. The Microsoft \_\_\_\_\_ framework is a component-based platform for developing distributed, heterogeneous, interoperable applications aimed at manipulating any type of data over any network under any operating system and any programming language.   |  |  | | --- | --- | | *ANSWER:* | .NET | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-1d ADO.NET | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 59. \_\_\_\_\_ is an application programming interface that allows a Java program to interact with a wide range of data sources (relational databases, tabular data sources, spreadsheets, and text files).   |  |  | | --- | --- | | *ANSWER:* | Java Database Connectivity  JDBC  Java Database Connectivity (JDBC) | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-1e Java Database Connectivity (JDBC) | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 60. \_\_\_\_\_ webpages are at the heart of current generation websites.   |  |  | | --- | --- | | *ANSWER:* | Dynamic | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2a Web-to-Database Middleware: Server-Side Extensions | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 61. APIs are faster than \_\_\_\_\_ scripts because the code resides in memory and there is no need to run an external program for each request.   |  |  | | --- | --- | | *ANSWER:* | CGI  Common Gateway Interface  Common Gateway Interface (CGI) | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2b Web Server Interfaces | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 62. Regardless of the type of web server interface used, a web-to-database \_\_\_\_\_ program must be able to connect with a database.   |  |  | | --- | --- | | *ANSWER:* | middleware | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-2b Web Server Interfaces | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 63. A web \_\_\_\_\_ server is a middleware application that expands the functionality of web servers by linking them to a wide range of services.   |  |  | | --- | --- | | *ANSWER:* | application | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-2e Web Application Servers | | *LEARNING OBJECTIVES:* | 15.04 - Identify the services provided by web application servers | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 64. To prevent the server from performing all data validation, \_\_\_\_\_ data input validation is one of the most basic requirements for web applications.   |  |  | | --- | --- | | *ANSWER:* | client-side  client side  clientside | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-2d Client-Side Extensions | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 65. XML is derived from the \_\_\_\_\_, an international standard for the publication and distribution of highly complex technical documents.   |  |  | | --- | --- | | *ANSWER:* | Standard Generalized Markup Language  SGML  Standard Generalized Markup Language (SGML) | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-3 Extensible Markup Language (XML) | | *LEARNING OBJECTIVES:* | 15.05 - Explain how Extensible Markup Language (XML) is used for web database development | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 66. XML tags must be well formed, that is, each opening tag must have a corresponding \_\_\_\_\_ tag.   |  |  | | --- | --- | | *ANSWER:* | closing | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-3 Extensible Markup Language (XML) | | *LEARNING OBJECTIVES:* | 15.05 - Explain how Extensible Markup Language (XML) is used for web database development | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 67. A(n) \_\_\_\_\_ provides limited additional semantic value to XML, such as data type support or data validation rules.   |  |  | | --- | --- | | *ANSWER:* | DTD  document type definition  document type definition (DTD) | | *DIFFICULTY:* | Difficulty: Easy | | *REFERENCES:* | 15-3a Document Type Definitions (DTD) and XML Schemas | | *LEARNING OBJECTIVES:* | 15.05 - Explain how Extensible Markup Language (XML) is used for web database development | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 68. A DBMS that supports \_\_\_\_\_ exchanges can integrate with external systems such as the web, mobile data, and legacy systems, thus enabling the creation of new types of systems.   |  |  | | --- | --- | | *ANSWER:* | XML | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-3c XML Applications | | *LEARNING OBJECTIVES:* | 15.05 - Explain how Extensible Markup Language (XML) is used for web database development | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 69. XML is used to create \_\_\_\_\_, or vocabularies for entire industries.   |  |  | | --- | --- | | *ANSWER:* | metadictionaries | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-3c XML Applications | | *LEARNING OBJECTIVES:* | 15.05 - Explain how Extensible Markup Language (XML) is used for web database development | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 70. \_\_\_\_\_ refer to a cloud computing-base data management service that provides relational data storage, access, and management to companies of all sizes without the typical high costs of in house hardware, software, infrastructure, and personnel.   |  |  | | --- | --- | | *ANSWER:* | SQL data services (SDS)  SQL data services  SDS | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-4e SQL Data Services | | *LEARNING OBJECTIVES:* | 15.06 - Describe the advantages and disadvantages of using cloud computing for the database-as-a-service | |

|  |
| --- |
| Essay |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 71. What are the components in the basic ODBC architecture?   |  |  | | --- | --- | | *ANSWER:* | The basic ODBC architecture has three main components: a high-level ODBC API through which application programs access ODBC functionality, a driver manager that is in charge of managing all database connections, and an ODBC driver that communicates directly to the DBMS. | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-1b ODBC, DAO, and RDO | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 72. What are the main types of objects in the OLE-DB model? Explain.   |  |  | | --- | --- | | *ANSWER:* | The functionality of OLE-DB model is divided into two types of objects: consumers and providers.  ​   1. Consumers are objects (applications or processes) that request and use data. Consumers request data by invoking the methods exposed by the data provider objects (public interface) and passing the required parameters. 2. Providers are objects that manage the connection with a data source and provide data to the consumers. Providers are divided into two categories: data providers and service providers.  * Data providers provide data to other processes. Database vendors create data provider objects that expose the functionality of the underlying data source (relational, object-oriented, text, and so on). * Service providers provide additional functionality to consumers. The service provider is located between the data provider and the consumer. The service provider requests data from the data provider, transforms the data, and then provides the transformed data to the data consumer. In other words, the service provider acts like a data consumer of the data provider and as a data provider for the data consumer (end-user application). For example, a service provider could offer cursor management services, transaction management services, query processing services, and indexing services. | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-1c OLE-DB | | *LEARNING OBJECTIVES:* | 15.02 - Describe the functionality and features of various database connectivity technologies: ODBC, OLE, ADO.NET, and JDBC | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 73. What is a server-side extension? Explain.   |  |  | | --- | --- | | *ANSWER:* | A server-side extension is a program that interacts directly with the web server to handle specific types of requests. A server-side extension program retrieves the data from databases and passes the retrieved data to the web server, which in turn sends the data to the client’s browser for display. A server-side extension makes it possible to retrieve and present the query results, but more importantly, it provides its services to the web server in a way that is totally transparent to the client browser. In short, the server-side extension adds significant functionality to the Web server, and therefore to the Internet. | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-2a Web-to-Database Middleware: Server-Side Extensions | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 74. What is JavaScript? How is JavaScript code activated?   |  |  | | --- | --- | | *ANSWER:* | JavaScript is a scripting language (one that enables the execution of a series of commands or macros) that allows web authors to design interactive sites. JavaScript code is embedded in the web page and executed after a specific event, such as a mouse click on an object or a page being loaded from the server into memory. | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-2d Client-Side Extensions | | *LEARNING OBJECTIVES:* | 15.03 - Describe how web-to-database middleware is used to integrate databases with the Internet | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 75. Identify the basic features provided by web application servers.   |  |  | | --- | --- | | *ANSWER:* | Web application servers provide features such as:  - An integrated development environment with session management and support for persistent application variables.  - Security and authentication of users through user IDs and passwords.  - Computational languages to represent and store business logic in the application server.  - Automatic generation of HTML pages integrated with Java, JavaScript, VBScript, ASP, and so on.  - Performance and fault-tolerant features.  - Database access with transaction management capabilities.  - Access to multiple services, such as file transfers (FTP), database connectivity, e-mail, and directory services. | | *DIFFICULTY:* | Difficulty: Moderate | | *REFERENCES:* | 15-2e Web Application Servers | | *LEARNING OBJECTIVES:* | 15.04 - Identify the services provided by web application servers | |