CHAPTER 9: DATABASE DESIGN

1. Systems analysis establishes the need for an information system and its extent.
   a. True
   b. False

   ANSWER: True
   PTS: 1   DIF: Difficulty: Easy   REF: p.440
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Information System

2. The term "database development" is used to describe the process of database design and implementation.
   a. True
   b. False

   ANSWER: True
   PTS: 1   DIF: Difficulty: Easy   REF: p.441
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Information System

3. The primary objective in database design is to create complete, normalized, nonredundant, and fully integrated conceptual, logical, and physical database models.
   a. True
   b. False

   ANSWER: True
   PTS: 1   DIF: Difficulty: Easy   REF: p.441
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Information System

4. The implementation phase of database design includes creating the database storage structure and loading the database, but does not provide for data management.
   a. True
   b. False

   ANSWER: False
   PTS: 1   DIF: Difficulty: Easy   REF: p.441
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Information System

5. The Systems Development Life Cycle (SDLC) traces the history of an information system.
   a. True
   b. False

   ANSWER: True
   PTS: 1   DIF: Difficulty: Easy   REF: p.442
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

6. The Systems Development Life Cycle (SDLC) provides the big picture within which the database design and application development can be mapped out and evaluated.
   a. True
   b. False

   ANSWER: True
   PTS: 1   DIF: Difficulty: Easy   REF: p.442
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

7. The Systems Development Life Cycle (SDLC) is a sequential process rather than an iterative process.
   a. True
   b. False

   ANSWER: False
   PTS: 1   DIF: Difficulty: Easy   REF: p.442
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

8. The Systems Development Life Cycle's (SDLC's) planning phase yields a general overview of the company and its objectives.
   a. True
   b. False

   ANSWER: True
   PTS: 1   DIF: Difficulty: Easy   REF: p.442
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

9. The result of analysis phase of the Systems Development Life Cycle (SDLC) should be a better understanding of the system's functional areas, actual and potential problems, and opportunities.
   a. True
   b. False

   ANSWER: True
   PTS: 1   DIF: Difficulty: Easy   REF: p.443
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

10. In the Systems Development Life Cycle (SDLC), problems defined during the planning phase are examined in greater detail during the analysis phase.
    a. True
    b. False

    ANSWER: True
    PTS: 1   DIF: Difficulty: Easy   REF: p.444
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

11. The analysis phase of the Systems Development Life Cycle (SDLC) involves a cycle of coding, testing, and debugging.
    a. True
    b. False

    ANSWER: False
    PTS: 1   DIF: Difficulty: Moderate   REF: p.444
    NAT: BUSPROG: Analytic   STATE: DISC: Information Technology
    KEY: Bloom's: Comprehension   TOP: The Systems Development Life Cycle

12. In the Systems Development Life Cycle (SDLC), the design of the system's processes begins in the detailed systems design phase.
    a. True
    b. False

    ANSWER: False
    PTS: 1   DIF: Difficulty: Easy   REF: p.444
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

13. In the detailed systems design phase of the Systems Development Life Cycle (SDLC), steps are laid out for the conversion of a database from an old system to a new system.
    a. True
    b. False

    ANSWER: True
    PTS: 1   DIF: Difficulty: Easy   REF: p.444
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

14. Training principles and methodologies are planned during the implementation phase of the Systems Development Life Cycle (SDLC).
    a. True
    b. False

    ANSWER: False
    PTS: 1   DIF: Difficulty: Easy   REF: p.444
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

15. The detailed systems design phase of the Systems Development Life Cycle (SDLC) includes all the necessary technical specifications for the screens, menus, reports, and other devices used to make the system more efficient.
    a. True
    b. False

ANSWER: True
PTS: 1   DIF: Difficulty: Easy   REF: p.444
NAT: BUSPROG: Technology   STATE: DISC: Information Technology
KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

16. During the implementation phase of the Systems Development Life Cycle (SDLC), the hardware, database management system (DBMS) software, and application programs are installed, and the database design is implemented.
    a. True
    b. False

ANSWER: True
PTS: 1   DIF: Difficulty: Easy   REF: p.444
NAT: BUSPROG: Technology   STATE: DISC: Information Technology
KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

17. The database contents might be loaded interactively or in batch mode using a variety of methods and devices including customized user programs.
    a. True
    b. False

ANSWER: True
PTS: 1   DIF: Difficulty: Easy   REF: p.444
NAT: BUSPROG: Technology   STATE: DISC: Information Technology
KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

18. The system is subjected to exhaustive testing during the testing phase of the Systems Development Life Cycle (SDLC).
    a. True
    b. False

ANSWER: False
PTS: 1   DIF: Difficulty: Moderate   REF: p.445
NAT: BUSPROG: Analytic   STATE: DISC: Information Technology
KEY: Bloom's: Comprehension   TOP: The Systems Development Life Cycle

19. In the Systems Development Life Cycle (SDLC), after testing is concluded, end-user training is not necessary.
    a. True
    b. False

ANSWER: False
PTS: 1   DIF: Difficulty: Moderate   REF: p.445
NAT: BUSPROG: Analytic   STATE: DISC: Information Technology
KEY: Bloom's: Comprehension   TOP: The Systems Development Life Cycle

20. A system is always at some stage of SDLC because every request for structural changes requires retracing the steps of the Systems Development Life Cycle (SDLC).
    a. True
    b. False

ANSWER: True
PTS: 1   DIF: Difficulty: Easy   REF: p.445
NAT: BUSPROG: Technology   STATE: DISC: Information Technology
KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

21. A system maintenance activity generated in response to changes in the business environment is referred to as corrective maintenance.

a. True

b. False

ANSWER: False
PTS: 1   DIF: Difficulty: Easy   REF: p.445
NAT: BUSPROG: Technology   STATE: DISC: Information Technology
KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

22. The overall purpose of the database initial study is to create the conceptual design.

a. True

b. False

ANSWER: False
PTS: 1   DIF: Difficulty: Easy   REF: p.446
NAT: BUSPROG: Technology   STATE: DISC: Information Technology
KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

23. To analyze the company situation, the database designer must discover what the company's operational components are, how they function, and how they interact.

a. True

b. False

ANSWER: True
PTS: 1   DIF: Difficulty: Easy   REF: p.446
NAT: BUSPROG: Technology   STATE: DISC: Information Technology
KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

24. After the initial declarations in Database Life Cycle (DBLC), the database designer must carefully probe in order to generate additional information that will help define the problem within the larger framework of company operations.

a. True

b. False

ANSWER: True
PTS: 1   DIF: Difficulty: Easy   REF: p.448
NAT: BUSPROG: Technology   STATE: DISC: Information Technology
KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

25. In most modern relational DBMSs, a new database implementation requires the creation of special storage-related constructs to house the end-user tables.
    a. True
    b. False

    ANSWER: True
    PTS: 1   DIF: Difficulty: Easy   REF: p.454
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

26. The assignment of access rights may restrict operations on predetermined objects such as databases, tables, views, queries, and reports.
    a. True
    b. False

    ANSWER: True
    PTS: 1   DIF: Difficulty: Moderate   REF: p.454
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

27. Data integrity is enforced by the database management system (DBMS) through the proper use of primary and foreign key rules.
    a. True
    b. False

    ANSWER: True
    PTS: 1   DIF: Difficulty: Easy   REF: p.454
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

28. The testing and evaluation phase of the Database Life Cycle (DBLC) occurs after applications programming.
    a. True
    b. False

    ANSWER: False
    PTS: 1   DIF: Difficulty: Easy   REF: p.454
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

29. Database performance is one of the least important factors in all database implementations.
    a. True
    b. False

    ANSWER: False
    PTS: 1   DIF: Difficulty: Easy   REF: p.454
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

30. Evaluation of database performance is rendered easier by the fact there are no standards to measure it.
    a. True
    b. False

    ANSWER: False
    PTS: 1   DIF: Difficulty: Easy   REF: p.454
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

31. The main purpose of a backup is to guarantee database restoration following a hardware or software failure.
    a. True
    b. False

    ANSWER: True
    PTS: 1   DIF: Difficulty: Easy   REF: p.455
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

32. The database administrator must be prepared to perform routine maintenance activities within the database.
    a. True
    b. False

    ANSWER: True
    PTS: 1   DIF: Difficulty: Easy   REF: p.457
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

33. Physical design becomes simpler when data is distributed at different locations.
    a. True
    b. False

    ANSWER: False
    PTS: 1   DIF: Difficulty: Easy   REF: p.473
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: Physical design

34. Decentralized design is typical of relatively simple, small databases and can be successfully done by a single person.
    a. True
    b. False

    ANSWER: False
    PTS: 1   DIF: Difficulty: Easy   REF: p.474
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: Centralized Versus Decentralized Design

35. The process of creating an information system is known as_____.
    a. systems development   b. database development
    c. network development   d. enterprise development

ANSWER: a
PTS: 1   DIF: Difficulty: Easy   REF: p.440
NAT: BUSPROG: Technology   STATE: DISC: Information Technology
KEY: Bloom's: Knowledge   TOP: The Information System

36. The traditional Systems Development Life Cycle (SDLC) is divided into_____phases.
    a. two   b. three
    c. four   d. five

    ANSWER: d
    PTS: 1   DIF: Difficulty: Easy   REF: p.442
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

37. Discovery of user requirements, existing system evaluation, and logical system design are part of the_____
    phase of the Systems Development Life Cycle (SDLC).
    a. planning   b. analysis
    c. detailed systems design   d. implementation

    ANSWER: b
    PTS: 1   DIF: Difficulty: Easy   REF: p.442
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

38. Coding, testing, and debugging are part of the_____phase of the Systems Development Life Cycle (SDLC).
    a. planning   b. analysis
    c. detailed systems design   d. implementation

    ANSWER: d
    PTS: 1   DIF: Difficulty: Easy   REF: p.442
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

39. "Should the existing system be replaced?" is a question that is asked during the_____stage of the Systems
    Development Life Cycle (SDLC).
    a. planning   b. analysis
    c. implementation   d. maintenance

    ANSWER: a
    PTS: 1   DIF: Difficulty: Easy   REF: p.443
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

40. "What are the requirements of the current system's end users?" is a question asked during the_____phase of
    the Systems Development Life Cycle (SDLC).
    a. planning   b. analysis
    c. implementation   d. maintenance

ANSWER: b
PTS: 1   DIF: Difficulty: Easy   REF: p.443
NAT: BUSPROG: Technology   STATE: DISC: Information Technology
KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

41. The feasibility study during the planning phase of the Systems Development Life Cycle (SDLC) must address the:
    a. requirements of the current system's end users.
    b. problems and constraints related to the company situation.
    c. questions about modification and replacement of existing system.
    d. technical aspects of hardware and software requirements.

    ANSWER: d
    PTS: 1   DIF: Difficulty: Moderate   REF: p.443
    NAT: BUSPROG: Analytic   STATE: DISC: Information Technology
    KEY: Bloom's: Comprehension   TOP: The Systems Development Life Cycle

42. The logical systems design is created during the_____phase of the Systems Development Life Cycle (SDLC).
    a. planning   b. analysis
    c. implementation   d. maintenance

    ANSWER: b
    PTS: 1   DIF: Difficulty: Easy   REF: p.444
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

43. The database contents are loaded during the_____phase of the Systems Development Life Cycle (SDLC).
    a. analysis   b. detailed systems design
    c. implementation   d. maintenance

    ANSWER: c
    PTS: 1   DIF: Difficulty: e   REF: p.444
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

44. In DBLC, the phase after the database initial study is_____.
    a. operation   b. database design
    c. database initial study   d. implementation and loading

    ANSWER: b
    PTS: 1   DIF: Difficulty: Easy   REF: p.445
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

45. The implementation of_____applications tends to prolong the operational life of systems by making them easier to update and maintain.
    a. database-produced   b. network-produced
    c. CASE-produced   d. design-produced

    ANSWER: c
    PTS: 1   DIF: Difficulty: Easy   REF: p.445
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

46. The maintenance and evolution phase of the Database Life Cycle (DBLC) involves_____.
    a. defining objectives   b. introducing changes
    c. testing the database   d. installing the DBMS

    ANSWER: b
    PTS: 1   DIF: Difficulty: Easy   REF: p.446
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

47. Selecting database management system (DBMS) software is part of the_____phase of the Database Life Cycle (DBLC).
    a. database initial study   b. database design
    c. implementation and loading   d. testing and evaluation

    ANSWER: b
    PTS: 1   DIF: Difficulty: Easy   REF: p.446
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

48. Producing the required information flow is part of the_____phase of the Database Life Cycle (DBLC).
    a. database initial study   b. database design
    c. operation   d. testing and evaluation

    ANSWER: c
    PTS: 1   DIF: Difficulty: Easy   REF: p.446
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life cycle

49. _____is a technique that creates logical representations of computing resources that are independent of the underlying physical computing resources.
    a. Normalization   b. Virtualization
    c. Specialization   d. Generalization

    ANSWER: b
    PTS: 1   DIF: Difficulty: Easy   REF: p.451
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

50. The implementation and loading phase of the Database Life Cycle (DBLC) involves_____.
    a. defining objectives   b. introducing changes

    c. testing the database   d. installing the DBMS

    ANSWER: d
    PTS: 1   DIF: Difficulty: Easy   REF: p.451
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

51. In the context of the database design process, the conceptual design step that defines the fragmentation and allocation strategy is_____.
    a. Database analysis and requirements   b. ER modeling and normalization

    c. data model verification   d. distributed database design

    ANSWER: d
    PTS: 1   DIF: Difficulty: Moderate   REF: p.452
    NAT: BUSPROG: Analytic   STATE: DISC: Information Technology
    KEY: Bloom's: Comprehension   TOP: The Database Life Cycle

52. In the context of the database design process, the conceptual design step that determines end-user views, outputs, and transaction-processing requirements is_____.
    a. Data analysis and requirements   b. entity relationship modeling and normalization

    c. data model verification   d. distributed data design

    ANSWER: a
    PTS: 1   DIF: Difficulty: Moderate   REF: p.452
    NAT: BUSPROG: Analytic   STATE: DISC: Information Technology
    KEY: Bloom's: Comprehension   TOP: The Database Life Cycle

53. _____can render data useless to unauthorized users who might have violated some of the database security layers.
    a. Data encryption   b. Access rights

    c. Physical security   d. Password security

    ANSWER: a
    PTS: 1   DIF: Difficulty: Easy   REF: p.454
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

54. Once the data has been loaded into the database, the_____tests and fine-tunes the database for performance, integrity, concurrent access, and security constraints.
    a. programmer   b. manager

    c. database administrator   d. systems administrator

    ANSWER: c
    PTS: 1   DIF: Difficulty: Easy   REF: p.454
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

55. In a(n) _____, only the objects that have been updated or modified since the last full backup are backed up.
    a. transaction log backup   b. conservative backup

    c. differential backup   d. adaptive backup

    ANSWER: c
    PTS: 1   DIF: Difficulty: Easy   REF: p.455
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

56. Which of the following is a hardware-induced database failure?
    a. memory chip errors   b. viruses

    c. malware   d. abortion due to deadlock

    ANSWER: a
    PTS: 1   DIF: Difficulty: Easy   REF: p.456
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

57. The last step in the Database Life Cycle (DBLC) is _____.
    a. maintenance and evolution   b. operation

    c. testing and evaluation   d. implementation and loading

    ANSWER: a
    PTS: 1   DIF: Difficulty: Easy   REF: p.457
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

58. The first step in developing the conceptual model using ER diagrams is to _____.
    a. normalize the entities

    b. complete the initial ER diagram

    c. identify, analyze, and refine the business rules

    d. define the attributes, primary keys, and foreign keys for each of the entities

    ANSWER: c
    PTS: 1   DIF: Difficulty: Easy   REF: p.461
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: Conceptual Design

59. The first step in the ER model verification process is to _____.
    a. identify each module and its components

    b. identify the ER model's central entity

    c. verify all processes against the ER model

    d. identify each module's internal transaction requirements

    ANSWER: b
    PTS: 1   DIF: Difficulty: Easy   REF: p.465
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: Conceptual Design

60. _____is the process of determining the data storage organization and data access characteristics of the database to ensure its integrity, security, and performance.
   a. Conceptual design   b. Network design
   c. Logical design   d. Physical design

   ANSWER: d
   PTS: 1   DIF: Difficulty: Easy   REF: p.471
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: Physical design

61. During decentralized design, after the_____has been completed, all modules are integrated into one conceptual model.
   a. declaration process   b. verification process
   c. conceptual process   d. logical process

   ANSWER: b
   PTS: 1   DIF: Difficulty: Easy   REF: p.476
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: Central Versus Decentralized Design

62. A(n)_____is a carefully designed and constructed repository of facts that is a part of a larger whole known as an information system.

   ANSWER: database
   PTS: 1   DIF: Difficulty: Easy   REF: p.440
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Information System

63. _____is the process that establishes the need for, and the extent of, an information system.

   ANSWER: Systems analysis
   PTS: 1   DIF: Difficulty: Easy   REF: p.440
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Information System

64. The traditional Systems Development Life Cycle (SDLC) phases are_____, analysis, detailed systems design, implementation, and maintenance.

   ANSWER: planning
   PTS: 1   DIF: Difficulty: Easy   REF: p.442
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

65. An initial assessment of the information flow-and-extent requirements must be made during the_____ portion of the Systems Development Life Cycle (SDLC).

   ANSWER: discovery
   PTS: 1   DIF: Difficulty: Easy   REF: p.442
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

66. After testing is concluded, the final_____is reviewed and printed and end users are trained.

   ANSWER: documentation
   PTS: 1   DIF: Difficulty: Easy   REF: p.445
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

67. The advent of very sophisticated application generators and_____has substantially decreased coding and testing time.

   ANSWER: debugging tools
   PTS: 1   DIF: Difficulty: Easy   REF: p.445
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Systems Development Life Cycle

68. The system's_____defines the extent of the design according to operational requirements.

   ANSWER: scope
   PTS: 1   DIF: Difficulty: Easy   REF: p.446
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

69. The proposed system is subject to limits known as_____, which are external to the system.

   ANSWER: boundaries
   PTS: 1   DIF: Difficulty: Easy   REF: p.450
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

70. Making sure that the final product meets user and system requirements is the most critical_____phase.

   ANSWER: Database Life Cycle (DBLC)
   PTS: 1   DIF: Difficulty: Easy   REF: p.450
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

71. _____are usually provided by the database management system (DBMS) to check for access violations.

   ANSWER: Audit trails
   PTS: 1   DIF: Difficulty: Easy   REF: p.454
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

72. Programmers use database tools to_____the applications during coding of the programs.

   ANSWER: prototype
   PTS: 1   DIF: Difficulty: Moderate   REF: p.454
   NAT: BUSPROG: Technology   STATE: DISC: Information Technology
   KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

73. _____allow end users to access the database without being able to download the information from their workstations.

    ANSWER: Diskless workstations
    PTS: 1   DIF: Difficulty: Easy   REF: p.454
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

74. _____allows the assignment of access rights to specific authorized users.

    ANSWER: Password security
    PTS: 1   DIF: Difficulty: Easy   REF: p.454
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: The Database Life Cycle

75. The_____stage uses data modeling to create an abstract database structure that represents real-world objects in the most realistic way possible.

    ANSWER: conceptual design
    PTS: 1   DIF: Difficulty: Easy   REF: p.457
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: Conceptual Design

76. The first step in_____is to discover the data element characteristics.

    ANSWER: conceptual design
    PTS: 1   DIF: Difficulty: Easy   REF: p.459
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: Conceptual Design

77. A designer must have a thorough understanding of the company's data types, extent, and uses in order to develop an accurate _____.

    ANSWER: data model
    PTS: 1   DIF: Difficulty: Easy   REF: p.459
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: Conceptual Design

78. A_____rule is a brief and precise narrative of a policy, procedure, or principle within a specific organization's environment.

    ANSWER: business rule
    PTS: 1   DIF: Difficulty: Easy   REF: p.459
    NAT: BUSPROG: Technology   STATE: DISC: Information Technology
    KEY: Bloom's: Knowledge   TOP: Conceptual Design

79. Because real-world database design is generally done by teams, the database design is probably divided into major components known as_____.

ANSWER: modules
PTS: 1   DIF: Difficulty: Easy   REF: p.464
NAT: BUSPROG: Technology   STATE: DISC: Information Technology
KEY: Bloom's: Knowledge   TOP: Conceptual Design

80. A_____is an information system component that handles a specific business function, such as inventory, orders, or payroll.

ANSWER: module
PTS: 1   DIF: Difficulty: Easy   REF: p.464
NAT: BUSPROG: Technology   STATE: DISC: Information Technology
KEY: Bloom's: Knowledge   TOP: Conceptual Design

81. The term_____describes the strength of the relationships found among a module's entities.
ANSWER: cohesivity
PTS: 1   DIF: Difficulty: Easy   REF: p.466
NAT: BUSPROG: Technology   STATE: DISC: Information Technology
KEY: Bloom's: Knowledge   TOP: Conceptual Design

82. When selecting DBMS_____, items to consider include processors, RAM, and disk space.

ANSWER: hardware
PTS: 1   DIF: Difficulty: Easy   REF: p.467
NAT: BUSPROG: Technology   STATE: DISC: Information Technology
KEY: Bloom's: Knowledge   TOP: DBMS Software Selection

83. The_____goal is to design an enterprise-wide database based on a specific data model but independent of physical-level details.

ANSWER: logical design
PTS: 1   DIF: Difficulty: Easy   REF: p.468
NAT: BUSPROG: Technology   STATE: DISC: Information Technology
KEY: Bloom's: Knowledge   TOP: Logical Design

84. _____could become a very technical job that affects not only the accessibility of the data in the storage device(s) but also the performance of the system.

ANSWER: Physical design
PTS: 1   DIF: Difficulty: Easy   REF: p.471
NAT: BUSPROG: Technology   STATE: DISC: Information Technology
KEY: Bloom's: Knowledge   TOP: Physical Design

85. List and briefly describe the three types of system maintenance activities.

ANSWER: The three types of maintenance activities are:

1. Corrective maintenance in response to systems errors.
2. Adaptive maintenance due to changes in the business environment.
3. Perfective maintenance to enhance the system.

PTS: 1   DIF: Difficulty: Moderate   REF: p.445
NAT: BUSPROG: Analytic   STATE: DISC: Information Technology
KEY: Bloom's: Comprehension   TOP: The Systems Development Life Cycle

86. List and describe the different levels at which database backups can be performed.

ANSWER: A full backup, or dump, of the entire database. In this case, all database objects are backed up in
their entirety.

A differential backup of the database, in which only the objects that have been updated or
modified since the last full backup are backed up.

A transaction log backup, which backs up only the transaction log operations that are not reflected
in a previous backup copy of the database. In this case, no other database objects are backed up.

PTS: 1   DIF: Difficulty: Moderate   REF: p.455
NAT: BUSPROG: Analytic   STATE: DISC: Information Technology
KEY: Bloom's: Comprehension   TOP: The Database Life Cycle

87. What are the factors affecting the purchasing decision for DBMS software?

ANSWER: Cost: This includes the original purchase price, along with maintenance, operational, license,
installation, training, and conversion costs.

DBMS features and tools: Some database software includes a variety of tools that facilitate
application development. For example, the availability of query by example (QBE), screen
painters, report generators, application generators, and data dictionaries helps to create a more
pleasant work environment for both the end user and the application programmer. Database
administrator facilities, query facilities, ease of use, performance, security, concurrency control,
transaction processing, and third-party support also influence DBMS software selection.

Underlying model: This can be hierarchical, network, relational, object/relational, or object-
oriented. Portability: A DBMS can be portable across platforms, systems, and languages.
DBMS hardware requirements: Items to consider include processor(s), RAM, disk space, and so
on.

PTS: 1   DIF: Difficulty: Moderate   REF: p.467
 NAT: BUSPROG: Analytic   STATE: DISC: Information Technology
KEY: Bloom's: Comprehension   TOP: DBMS Software Selection

88. Explain the concept of logical design and list the steps involved.

ANSWER: Logical design is the second stage in the database design process. The logical design goal is to
design an enterprise-wide database that is based on a specific data model but independent of
physical-level details. Logical design requires that all objects in the conceptual model be mapped
to the specific constructs used by the selected database model.

The logical design is generally performed in the following four steps:

1. Mapping the conceptual model to logical model components

2. Validating the logical model using normalization

3. Validating the logical model integrity constraints

4. Validating the logical model against user requirements

PTS: 1   DIF: Difficulty: Moderate   REF: p.468
NAT: BUSPROG: Analytic   STATE: DISC: Information Technology
KEY: Bloom's: Comprehension   TOP: Logical Design

89. What are the classical approaches to database design?

ANSWER: There are two classical approaches to database design:

1. Top-down design starts by identifying the data sets and then defines the data elements for each of those sets. This process involves the identification of different entity types and the definition of each entity's attributes.

2. Bottom-up design first identifies the data elements (items) and then groups them together in data sets. In other words, it first defines attributes, and then groups them to form entities.

PTS: 1   DIF: Difficulty: Moderate   REF: p.473
 NAT: BUSPROG: Analytic   STATE: DISC: Information Technology
KEY: Bloom's: Comprehension   OP: Database Design Strategies

90. Explain the differences between a centralized and decentralized approach to database design.

ANSWER: Centralized design is productive when the data component has a relatively small number of objects and procedures. The design can be carried out and represented in a fairly simple database. Centralized design is typical of relatively simple, small databases and can be successfully done by a single database administrator or by a small, informal design team. The company operations and the scope of the problem are sufficiently limited to allow even a single designer to define the problem(s), create the conceptual design, verify the conceptual design with the user views, define system processes and data constraints to ensure the efficacy of the design, and ensure that the design will comply with all the requirements.

On the other hand, decentralized design might be used when the system's data component has a considerable number of entities and complex relations on which very complex operations are performed. Decentralized design is also often used when the problem itself is spread across several operational sites and each element is a subset of the entire data set. In large and complex projects, the database typically cannot be designed by only one person. Instead, a carefully selected team of database designers tackles a complex database project. Within the decentralized design framework, the database design task is divided into several modules. Once the design criteria have been established, the lead designer assigns design subsets or modules to design groups within the team.

PTS: 1   DIF: Difficulty: Moderate   REF: p.474-475
 NAT: BUSPROG: Analytic   STATE: DISC: Information Technology
KEY: Bloom's: Comprehension   TOP: Centralized Versus Decentralized Design