

Chapter 01 - Introduction to Systems Analysis and Design

True / False

1. Most firms give their IT budgets a low priority in good economic times.

- a. True
- b. False

ANSWER: False

2. A mission-critical system is one that is unimportant to a company's operations.

- a. True
- b. False

ANSWER: False

3. In an information system, data is information that has been transformed into input that is valuable to users.

- a. True
- b. False

ANSWER: False

4. Transaction processing (TP) systems are inefficient because they process a set of transaction-related commands individually rather than as a group.

- a. True
- b. False

ANSWER: False

5. In a knowledge management system, a knowledge base consists of logical rules that identify data patterns and relationships.

- a. True
- b. False

ANSWER: False

6. Most large companies require systems that combine transaction processing, business support, knowledge management, and user productivity features.

- a. True
- b. False

ANSWER: True

7. Since middle managers focus on a longer time frame, they need less detailed information than top managers, but somewhat more than supervisors who oversee day-to-day operations.

- a. True
- b. False

ANSWER: False

8. Many companies find that a trend called empowerment, which gives employees more responsibility and accountability, improves employee motivation and increases customer satisfaction.

- a. True
- b. False

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ANSWER: True

9. Network administration includes hardware and software maintenance, support, and security.

- a. True
- b. False

ANSWER: True

10. The responsibilities of a systems analyst at a small firm are exactly the same as those at a large corporation.

- a. True
- b. False

ANSWER: False

11. Tools make it easier to build an information system, thereby boosting IT productivity and improving the quality of the finished product.

- a. True
- b. False

ANSWER: True

12. After developing a model, many CASE tools can generate program code, which impedes and slows down the implementation process.

- a. True
- b. False

ANSWER: False

13. Application software consists of programs that support day-to-day business functions and provide users with the information they need.

- a. True
- b. False

ANSWER: True

14. User support provides users with technical information, training, and productivity support.

- a. True
- b. False

ANSWER: True

15. Assistive technology refers to the combination of hardware, software, and services that people use to manage, communicate, and share information.

- a. True
- b. False

ANSWER: False

16. A large concentration of networked computers working together is called a data ranch.

- a. True
- b. False

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ANSWER: False

17. System software controls the flow of data, provides data security, and manages network operations.

- a. True
- b. False

ANSWER: True

18. Examples of company-wide applications, called legacy applications, include order processing systems, payroll systems, and company communications networks.

- a. True
- b. False

ANSWER: False

19. Hardware consists of everything in the physical layer of the information system.

- a. True
- b. False

ANSWER: True

20. When planning an information system, a company must consider how a new system will interface with older systems, which are called horizontal systems.

- a. True
- b. False

ANSWER: False

21. Traditional relational models are still used, but so-called NoSQL databases are gaining in popularity due to their ability to scale to extremely large and unstructured datasets.

- a. True
- b. False

ANSWER: True

22. On mobile devices, the user interacts with the system with an app, but the same back-end services are accessed as when the user interacts with a web page.

- a. True
- b. False

ANSWER: True

23. A business profile is a specific set of transactions, events, and results that can be described and documented.

- a. True
- b. False

ANSWER: False

24. Business process modeling notation (BPMN) includes standard shapes and symbols to represent events, processes, workflows, and more.

- a. True
- b. False

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ANSWER: True

25. When one is using a transaction processing system, if a single element of a transaction fails, the system will skip the corrupt element and continue to process the rest of the transaction.

- a. True
- b. False

ANSWER: False

26. When companies first installed word processing systems, managers expected to reduce the number of employees as office efficiency increased.

- a. True
- b. False

ANSWER: True

27. Knowledge workers and team leaders are included in the top level of the organizational model.

- a. True
- b. False

ANSWER: False

28. The waterfall model emphasizes interactivity among the phases.

- a. True
- b. False

ANSWER: False

29. Object-oriented methods provide an easy transition to O-O programming languages such as C++, Java, and Swift.

- a. True
- b. False

ANSWER: True

30. The structure of the IT department varies among companies, as do its name and placement within the organization.

- a. True
- b. False

ANSWER: True

Multiple Choice

31. When planning an information system, a company must consider how a new system will interface with older systems, which are called ____.

- a. enterprise applications
- b. network operating systems (NOS)
- c. operating applications
- d. legacy systems

ANSWER: d

32. Internet-based commerce is called ____ and includes two main sectors: B2C (business-to-consumer) and B2B

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(business-to-business).

- a. electronic commerce
- b. network-oriented commerce
- c. virtual trading
- d. online trading

ANSWER:

a

33. Which is one of the main sectors of ecommerce?

- a. C2C (consumer-to-consumer)
- b. B2C (business-to-consumer)
- c. C2B (consumer-to-business)
- d. BPM (business process model)

ANSWER:

b

34. _____ enabled computer-to-computer transfer of data between companies, usually over private telecommunications networks.

- a. Electronic data interchange (EDI)
- b. Radio frequency identification (RFID)
- c. Enterprise resource planning (ERP)
- d. Object-oriented (O-O) analysis

ANSWER:

a

35. A _____ is an overview that describes a company's overall functions, processes, organization, products, services, customers, suppliers, competitors, constraints, and future direction.

- a. business matrix
- b. business profile
- c. business index
- d. business glossary

ANSWER:

b

36. A _____ graphically displays one or more business processes, such as handling an airline reservation, filling a product order, or updating a customer account.

- a. business matrix model (BMM)
- b. business process model (BPM)
- c. business indexing model (BIM)
- d. business strategic model (BSM)

ANSWER:

b

37. For complex models, analysts can choose computer-based modeling tools that use _____, which includes standard shapes and symbols to represent events, processes, workflows, and more.

- a. electronic data interchange (EDI)
- b. joint application development (JAD)
- c. business process modeling notation (BPMN)
- d. rapid application development (RAD)

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ANSWER:

c

38. Transaction processing (TP) systems _____.

- a. provide job-related information to users at all levels of a company
- b. simulate human reasoning by combining a knowledge base and inference rules that determine how the knowledge is applied
- c. process data generated by day-to-day business operations
- d. include email, voice mail, fax, video conferencing, word processing, automated calendars, database management, spreadsheets, and integrated mobile computing systems

ANSWER:

c

39. Business support systems _____.

- a. provide job-related information support to users at all levels of a company
- b. simulate human reasoning by combining a knowledge base and inference rules that determine how the knowledge is applied
- c. process data generated by day-to-day business operations
- d. include email, voice mail, fax, video conferencing, word processing, automated calendars, database management, spreadsheets, and integrated mobile computing systems

ANSWER:

a

40. _____ technology uses high-frequency radio waves to track physical objects.

- a. Redundant array of independent disks (RAID)
- b. Radio frequency identification (RFID)
- c. Enterprise resource planning (ERP)
- d. Management information system (MIS)

ANSWER:

b

41. Knowledge management systems use a large database called a(n) _____ that allows users to find information by entering keywords or questions in normal English phrases.

- a. inference engine
- b. knowledge base
- c. knowledge database management system
- d. inference manager

ANSWER:

b

42. User productivity systems _____.

- a. provide job-related information to users at all levels of a company
- b. simulate human reasoning by combining a knowledge base and inference rules that determine how the knowledge is applied
- c. process data generated by day-to-day business operations
- d. include groupware programs that enable users to share data, collaborate on projects, and work in teams

ANSWER:

d

43. In a typical organizational model, top managers _____.

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- a. develop long-range plans, called strategic plans, which define a company's overall mission and goals
- b. provide direction, necessary resources, and performance feedback to supervisors and team leaders
- c. oversee operation employees and carry out day-to-day functions, coordinating operational tasks and people
- d. include users who rely on transaction processing (TP) systems to enter and receive the data they need to perform their jobs

ANSWER: a

44. In a typical company organizational model, middle managers _____.

- a. develop long-range plans, called strategic plans, which define the company's overall mission and goals
- b. provide direction, necessary resources, and performance feedback to supervisors and team leaders
- c. oversee operation employees and carry out day-to-day functions, coordinating operational tasks and people
- d. include users who rely on transaction processing (TP) systems to enter and receive the data they need to perform their jobs

ANSWER: b

45. _____ is a systems development technique that produces a graphical representation of a concept or process that systems developers can analyze, test, and modify.

- a. Prototyping
- b. Rapid application development
- c. Scrum
- d. Modeling

ANSWER: d

46. A _____ describes the information that a system must provide.

- a. process model
- b. data model
- c. business model
- d. network model

ANSWER: c

47. _____ is a systems development technique that tests system concepts and provides an opportunity to examine input, output, and user interfaces before final decisions are made.

- a. Scrum
- b. Prototyping
- c. Modeling
- d. Rapid application development

ANSWER: b

48. Identify a method of developing systems that is well-suited to traditional project management tools and techniques.

- a. Object-oriented analysis
- b. Adaptive method
- c. Structured analysis
- d. Rapid application development

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ANSWER:

c

49. The _____ method of developing systems produces code that is modular and reusable.

- a. object-oriented analysis
- b. adaptive
- c. structured analysis
- d. rapid application development

ANSWER:

a

50. Which method of system development stresses intense team-based effort and reflects a set of community-based values?

- a. Object-oriented analysis
- b. Agile method
- c. Structured analysis
- d. Rapid application development

ANSWER:

b

51. One of the disadvantages of _____ methods of system development is that the overall project might be subject to scope change as user requirements change.

- a. object-oriented analysis
- b. agile
- c. structured analysis
- d. rapid application development

ANSWER:

b

52. Structured analysis is a traditional systems development technique that uses a series of phases, called the _____, to plan, analyze, design, implement, and support an information system.

- a. object-oriented (O-O) analysis
- b. systems development life cycle (SDLC)
- c. transaction processing (TP) system
- d. enterprise resource planning system (ERP)

ANSWER:

b

53. Structured analysis is called a(n) _____ technique because it focuses on processes that transform data into useful information.

- a. iterative
- b. process-centered
- c. inferred
- d. model-specific

ANSWER:

b

54. A(n) _____ shows the data that flow in and out of system processes.

- a. process model
- b. object model

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- c. business model
- d. network model

ANSWER:

a

55. A(n) _____ uses various symbols and shapes to represent data flow, processing, and storage.

- a. process flow diagram
- b. object model
- c. data flow diagram
- d. network model

ANSWER:

c

56. In a(n) _____ model, the result of each phase is called a deliverable, which flows into the next phase.

- a. interactive
- b. iterative
- c. waterfall
- d. spiral

ANSWER:

c

57. The _____ usually begins with a formal request to the IT department, called a systems request, which describes problems or desired changes in an information system or a business process.

- a. systems design phase
- b. systems planning phase
- c. systems support and security phase
- d. systems analysis phase

ANSWER:

b

58. In a systems development life cycle (SDLC) model, the purpose of the _____ is to build a logical model of the new system.

- a. systems analysis phase
- b. systems implementation phase
- c. systems design phase
- d. systems support and security phase

ANSWER:

a

59. In a systems development life cycle (SDLC) model, the purpose of the _____ is to create a physical model that will satisfy all documented requirements for the system.

- a. systems implementation phase
- b. systems planning phase
- c. systems analysis phase
- d. systems design phase

ANSWER:

d

60. During the _____ of the systems development life cycle (SDLC), a new system is constructed.

- a. systems planning phase

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- b. systems support and security phase
- c. systems design phase
- d. systems implementation phase

ANSWER:

d

61. The systems implementation phase of the systems development life cycle (SDLC) includes an assessment, called a _____, to determine whether the system operates properly and if costs and benefits are within expectation.

- a. systems estimation
- b. systems verification
- c. systems validation
- d. systems evaluation

ANSWER:

d

62. During the _____ of the systems development life cycle (SDLC), the IT staff maintains, enhances, and protects the system.

- a. systems support and security phase
- b. systems implementation phase
- c. systems analysis phase
- d. systems planning phase

ANSWER:

a

63. In object-oriented analysis, objects possess characteristics called _____.

- a. properties
- b. orientations
- c. classes
- d. inheritances

ANSWER:

a

64. In object-oriented analysis, an object is a member of a(n) _____, which is a collection of similar objects.

- a. property
- b. class
- c. message
- d. instance

ANSWER:

b

65. In object-oriented design, built-in processes called _____ can change an object's properties.

- a. methods
- b. functions
- c. attributes
- d. features

ANSWER:

a

66. Agile methods typically use a(n) _____, which represents a series of iterations based on user feedback.

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- a. incremental model
- b. extreme model
- c. spiral model
- d. evaluative model

ANSWER:

c

67. The _____ group typically provides leadership and overall guidance, but the systems themselves are developed by teams consisting of users, managers, and IT staff members.

- a. web support
- b. application development
- c. systems support
- d. database administration

ANSWER:

b

68. _____ provides vital protection and maintenance services for system hardware and software, including enterprise computing systems, networks, transaction processing systems, and corporate IT infrastructure.

- a. User support
- b. Database administration
- c. Systems support and security
- d. Network administration

ANSWER:

c

69. A _____ answers questions, troubleshoots problems, and serves as a clearinghouse for user problems and solutions.

- a. user support specialist
- b. database administrator
- c. web support specialist
- d. network administrator

ANSWER:

a

70. _____ design and construct web pages, monitor traffic, manage hardware and software, and link web-based applications to a company's information systems.

- a. User support specialists
- b. Database administrators
- c. Web support specialists
- d. Network administrators

ANSWER:

c

71. Many large IT departments use a(n) _____ team that reviews and tests all applications and systems changes to verify specifications and software quality standards.

- a. beta testing
- b. quality assurance
- c. alpha testing
- d. acceptance verifier

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ANSWER:

b

72. A(n) _____ investigates, analyzes, designs, develops, installs, evaluates, and maintains a company's information systems.

- a. application developer
- b. database administrator
- c. network administrator
- d. systems analyst

ANSWER:

d

73. Many hardware and software companies offer _____ for IT professionals, which verifies that an individual demonstrated a certain level of knowledge and skill on a standardized test.

- a. spot identification
- b. certification
- c. education
- d. accreditation

ANSWER:

b

Critical Thinking Questions

Case 1-1

Roark has just joined a company and in his role as a lead analyst, he will be responsible for determining which systems development method the team uses to create a new application for a major medical supplier.

74. After spending a week getting to know the members of the team, including their strengths and weaknesses, and what has worked well (and not so well) for this particular team in the past, Roark realizes that one theme keeps recurring: the team has particularly weak communications skills. Which method is Roark *least* likely to use, given that he knows about the disadvantages of each method?

- a. Structured analysis
- b. Agile/adaptive methods
- c. Object-oriented analysis
- d. Rapid application development

ANSWER:

b

75. It is a new day at the firm. Roark has been in place for a few weeks, strengthening the communications skills of his employees, getting them to work much better together. Now, the challenge that he faces is not an internal one; it lies with the client, which is increasingly incapable of sticking with decisions. Roark, based on his past experience with other clients like this, is afraid that the client will throw them a curveball and want to make changes late in the game—but that they also will be unwilling to absorb the costs of those changes. For this reason, which method of development will Roark eliminate?

- a. Structured analysis
- b. Agile/adaptive methods
- c. Object-oriented analysis
- d. Rapid application development

ANSWER:

a

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Essay

76. Who is a knowledge worker, and why is this kind of worker required by successful companies?

ANSWER: Knowledge workers include systems analysts, programmers, accountants, researchers, trainers, human resource specialists, and other professionals. Knowledge workers also use business support systems, knowledge management systems, and user productivity systems. Knowledge workers provide support for an organization's basic functions. Just as a military unit requires logistical support, a successful company needs knowledge workers to carry out its mission.

RUBRIC:

Criteria	0 - Failure	1 - Below Expectations	2 - Developing	3 - Competent	4 - Mastery
Explains who knowledge workers are.					
Explains why knowledge workers are required by successful companies.					

77. Discuss the pros and cons of agile methods.

ANSWER: Pros:
 Very flexible and efficient in dealing with change.
 Stresses team interaction and reflects a set of community-based values.
 Frequent deliverables constantly validate the project and reduce risk.
 Cons:
 Team members need a high level of technical and communications skills. Lack of structure and documentation can introduce risk factors.
 Overall project might be subject to scope change as user requirements change.

RUBRIC:

Criteria	0 - Failure	1 - Below Expectations	2 - Developing	3 - Competent	4 - Mastery
Student lists pros.					
Student lists cons.					

78. Discuss the pros and cons of structured analysis.

ANSWER: Pros:
 Traditional method that has been very popular over time.
 Relies heavily on written documentation.
 Frequent phase iteration can provide flexibility comparable to other methods.
 Well-suited to traditional project management tools and techniques.
 Cons:
 Changes can be costly, especially in later phases.
 Requirements are defined early, and can change during development.
 Users might not be able to describe their needs until they can see examples of features and functions.

RUBRIC:

Criteria	0 - Failure	1 - Below Expectations	2 - Developing	3 - Competent	4 - Mastery
Student lists pros.					
Student lists cons.					

79. Discuss the pros and cons of object-oriented analysis.

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ANSWER: Pros:
 Integrates easily with object-oriented programming languages.
 Code is modular and reusable, which can reduce cost and development time.
 Easy to maintain and expand because new objects can be created using inherited properties.
 Cons:
 Somewhat newer method might be less familiar to development team members.
 Interaction of objects and classes can be complex in larger systems.

RUBRIC:

Criteria	0 - Failure	1 - Below Expectations	2 - Developing	3 - Competent	4 - Mastery
Student lists pros.					
Student lists cons.					

80. Explain what is meant by "corporate culture." Why is it important?

ANSWER: Every firm has an underlying corporate culture. A corporate culture is the set of beliefs, rules, traditions, values, and attitudes that define a company and influence its way of doing business. To be successful, a systems analyst must understand the corporate culture and how it affects the way information is managed. Companies sometimes include statements about corporate culture in their mission statements. A systems analyst must understand the firm's culture and find it comfortable. If the company encourages personal growth and empowerment, work is much more enjoyable.

RUBRIC:

Criteria	0 - Failure	1 - Below Expectations	2 - Developing	3 - Competent	4 - Mastery
Student defines corporate culture.					
Student explains why corporate culture is important.					