STUDY QUESTIONS
Chapter 1: Introduction to Systems Analysis and Design

Multiple Choices

1. The process of understanding how an information system can support business needs, design the system, build it, and deliver it to users is the _____
    a. analysis phase of the SDLC
    b. object oriented approach
    c. rule for creating a CASE tool
    d. systems development life cycle
    e. waterfall development methodology

2. The person that identifies opportunities for improvements and designs an information system to implement them is called a(n) _____.
    a. computer programmer
    b. end-user
    c. systems analyst
    d. systems specialist
    e. technical writer

3. The primary goal of the systems analyst is to _____.
    a. acquire a working tool
    b. create a wonderful system
    c. create value for the organization
    d. establish the phases of the SDLC
    e. identify opportunities for improvement

4. Developing an information system is similar to building a house because you have to
    a. start with a basic idea of what is needed
    b. create simple drawings of what is needed and allow the customer to provide feedback
    c. develop a detailed set of blueprints
    d. actually build the project, often with some changes directed by the customer
    e. all of the above

5. The four phases of the Systems Development Life Cycle are _____.
    a. analysis, gathering, modeling, and diagramming
    b. construction, installation, testing, and converting
    c. initiating, planning, controlling, and implementing
    d. planning, analysis, design, and implementation
    e. system request, feasibility, staffing, and construction

6. Understanding why an information system should be built and determining how the project team will build it is part of the _____ phase of the SDLC.
   a. analysis
   b. system request
   c. gathering
   d. initiating
   e. planning

7. The _____ is generated by the department or person that has an idea for a new information system.
   a. a. economic feasibility analysis
   b. b. requirements document
   c. c. project charter
   d. d. system request
   e. e. project plan

8. The project sponsor is the _____.
   a. lead systems analyst on the project team
   b. person or department that requested the system
   c. lead computer programmer charged with writing the code for the system
   d. project team leader in charge of developing the system
   e. any of these choices may fill the role of the project sponsor

9. Feasibility analysis examines several questions, including "_____?"
   a. Can it be built (technical feasibility)
   b. Do we have the right people to build it (organizational feasibility)
   c. If we build it, can our computers handle the load (operational feasibility)
   d. Can we get afford it (economic feasibility)
   e. all of these

10. The project plan is the document that is used to _____.
   a. describe how the project team will go about developing the proposed system
   b. outline the tasks to be addressed in developing the proposed system and develop a time estimate for each task.
   c. outline the technical, economic, and organizational feasibility of the proposed system
   d. summarize the business need and explain how the proposed system supports that need and creates value
   e. all of these

11. In which phase of the SDLC is the project plan developed?
   a. analysis
   b. design
   c. implementation
   d. planning

e. reconstruction

12. In which phase of the SDLC is the system proposal developed?
a. analysis
b. design
c. implementation
d. planning
e. system delivery

13. The analysis phase of the SDLC answers which questions _____.
a. who will create the system and when will it be used
b. who will the system be for, what the system will do, when will it be used, and where will it be used
c. why build the system, what the system will be, and how the system will work
d. why build the system, who will the system be for, when will it be used, and how the system will work
e. why build the system, who will the system be for, when will it be used, and where will it be used

14. Deciding how the hardware, software, and network infrastructure will operate occurs during the _____ phase of the SDLC.
a. analysis
b. design
c. implementation
d. planning
e. strategy

15. In which phase of the SDLC is the system specification developed?
a. analysis
b. design
c. implementation
d. planning
e. system delivery

16. Interfaces (e.g., menus, reports, forms) are specified during the _____ phase of the SDLC.
a. analysis
b. design
c. implementation
d. planning
e. system delivery

17. The phase of the SDLC when the system is actually built or purchased is the _____.
    a. analysis
    b. construction
    c. design
    d. implementation
    e. planning

18. A development methodology that focuses on the processes as the core of the system is said to be _____.
    a. action-oriented
    b. structure-oriented
    c. process-centered
    d. object-oriented
    e. data-centered

19. The principal disadvantages(s) with the waterfall development methodology is (are) _____.
    a. a long time elapses between completion of the system proposal and the delivery of the system
    b. if the team misses important requirements, expensive post-implementation programming may be needed
    c. the design must be completely specified on paper before programming begins
    d. all of these
    e. none of these

20. _____ development is a structured design methodology that proceeds in a sequence from one phase to the next.
    a. Parallel
    b. Phased
    c. Agile
    d. Rapid Application
    e. Waterfall

21. Any modern object-oriented approach to software development must be use case driven, _____, and iterative and incremental.
    a. User-centric
    b. Architecture-centric
    c. Requirements-driven
    d. Model-driven
    e. Object-centric

22. Iterative and Incremental development means that
    a. the team is using a prototyping methodology
    b. the system will be developed through versions
    c. the system will be developed in phases
    d. the system will undergo continuous testing and refinement
    e. the team is using an agile methodology

23. Users typically do not think in terms of data or processes; instead, they see their business as a collection of logical units that contain both – so communicating in terms of _____ improves the interaction between a user and an analyst or developer.
    a. objects
    b. business rules
    c. business units
    d. attributes and methods
    e. workflow units

24. In the Enhanced Unified Process, the Inception Phase involves several workflows including _____.
    a. analysis
    b. design
    c. implementation
    d. all of these
    e. none of these

25. In the Enhanced Unified Process, the Production Phase involves several workflows including _____.
    a. analysis
    b. design
    c. implementation
    d. all of these
    e. none of these

26. Overall, the consistent notation, integration among the diagramming techniques, and application of the diagrams across the entire development process makes _____ a powerful and flexible tool set for analysts and developers.
    a. CASE
    b. UML
    c. DFDs
    d. EPCs
    e. Flow Charts

27. In SCRUM, teams organize themselves in a symbiotic manner and set their own goals for each _____:
    a. phase
    b. module
    c. week
    d. function
    e. sprint

28. SCRUM belongs to the category of system development methodologies:
    a. agile development
    b. rapid application development
    c. structured design
    d. waterfall development
    e. rapid prototyping

29. Which following is one of the basic characters of object-oriented systems :
    a. process
    b. data
    c. module
    d. inheritance
    e. garbage collection

30. Polymorphism is made possible through _____ :
    a. static binding
    b. dynamic binding
    c. initialization
    d. messaging
    e. Information hiding

True/False

1. The primary objective of the systems analyst is to create a wonderful system. **False**

2. The planning phase is the fundamental process of understanding how an information system should be built and determining who on the project team will build it. **False**

3. During the analysis phase of the SDLC the systems analyst will decide how the hardware, software and network infrastructure, user interface, forms and reports will be used. **False**

4. The new information system is purchased or built during the implementation phase of the SDLC. **True**

5. The waterfall development methodology derives its name from the salmon that swim up the waterfall against the current. **False**

6. The infrastructure analyst is responsible for the design of the new business policies and processes. **False**

7. The role of the project manager includes managing the team members, developing the project plan, assigning resources and serving as the primary point of contact for people outside the project team. **True**

8. The role of the change management analyst includes ensuring that adequate documentation and support are available to the users. **True**

9. The business analyst is responsible for ensuring that the project is completed on time and within budget and that the system delivers all benefits that were intended by the project sponsor. **False**

10. The project manager develops ideas and suggestions for how to improve business processes, designs new business processes, and identifies the business value the new system will create. **False**

11. Determining who will use the system, what the system will do, and where and when it will be used is performed during the analysis phase of the SDLC. **True**

12. RAD (Rapid Application Development) adjusts the SDLC phases to get some of the system developed and into the hands of the users quickly. **True**

13. Agile development is considered a special case of RAD approach to developing systems. **False**

14. Phased development is considered a special case of RAD approach to developing systems. **True**

15. Kim repeatedly performs the analysis, design, and implementation phases concurrently in a cycle until the system is completed. She then goes back and from scratch does a thorough design and implementation to complete the project. She is following a throwaway prototype methodology. **True**

16. Throwaway prototyping balances the benefits of well-thought-out analysis and design phases with the advantages of using prototypes to refine key issues before the system is built. **True**

17. The creation of a design prototype that is not a working information system, but represents a part of the system that needs additional refinement happens with the prototyping methodology. **False**

18. Parallel development relies on only one iteration of the analysis phase. **True**

19. A local retailer has hired Geneva and Sydney to develop his new information system. He is not sure what type of system he wants, but it must be completed in four months and he needs to know regularly that the project is on schedule. Geneva and Sydney should use the Waterfall Development methodology for constructing the system. **False**

20. The primary advantage of the Waterfall Development methodology is requirements are completely specified and held relatively constant prior to programming. **True**

21. *Extreme programming* is ideal for developing large mission-critical applications. **False**

22. An analyst with business skills that understands the business issues surrounding a system is commonly called a project manager. **False**

23. An analyst that focuses on the IS issues in a system, and who represents the interests of the IS department is called a systems analyst. **True**

24. The analyst that develops ideas and suggestions to improve the application of information technology is commonly called a systems analyst. **True**

25. An analyst that focuses on the technical issues of the organization (hardware, software, databases and networks) is commonly called a change management analyst. **True**

26. Scott has been assigned to focus on the users during the upcoming information systems installation. Scott will provide user training and documentation. His role is to serve as a change management analyst. **False**

27. Michelle has been assigned the task of completing the project in a timely manner and within budget. Her project team role is infrastructure analyst. **False**

28. Systems analysts Lori and Mark are employed by the local hospital. They have been assigned to develop a very complex patient monitoring system for the cardio-care unit using a new display technology. Throwaway prototyping is a very suitable methodology for this project. **False**

29. Agile development methodology aims at eliminating the modeling and documentation overhead in IS projects, while emphasizing simple, iterative application development. **True**

30. Extreme programming is founded on core principles such as communication, simplicity, feedback, and courage **True**

31. In extreme programming programmers pair up to write the code. **True**

32. Extreme programming depends on refactoring to ensure that the code is kept simple. **True**

33. Jim Smith is a project manager in the IS department of an insurance company and he just hired a group of four contractors to work on a project together with an in-house team of 4 full-time employees. He should use extreme programming as a methodology for the project. **False**

34. You are carrying out a project that involves information systems for the operation of controls in a passenger jet craft. This is an ideal project for you to follow a throwaway prototyping methodology. **True**

35. For complex systems, throwaway prototyping is not a suitable methodology, since it will lead to problems with maintaining the system. **False**

36. For complex systems, prototyping is not a suitable methodology, since it will lead to problems with maintaining the system. **True**

37. For urgent projects, it is a good idea to use a prototyping methodology. **True**

38. A project manager most likely would not have worked as a systems analyst in the past, since project management career track is independent of the system analyst's career track. **False**

39. Project team members focus on getting the project done, leaving change management to the business managers. **False**

40. The business analyst serves as the primary contact point with the project. **False**

41. The Unified Process is not use-case driven. **False**

42. Implementation is a phase in the Unified Process. **False**

43. Project Management is a supporting workflow within the Unified Process. **True**

44. The Enhanced Unified Process goes beyond building the system and includes maintaining the system. **True**

45. The environment workflow in the Unified Process is designed to deal with the organizational and policy issues the project faces within the organizational environment. **False**

46. One of the criticisms of the Unified Process is that if fails to deal with the system after it has been delivered. **True**

47. Under the Unified Process, the Configuration and Change Management workflow

includes risk management and scope management, among several other activities. **False**

48. Under the Unified Process, the Project Management workflow includes risk management and scope management, among several other activities. **True**
49. The business modeling workflow uncovers problems and identifies potential projects. **True**

50. In the Unified Process, the analysis phase follows requirements. **False**

51. In the Unifies Process, analysis is a workflow, not a phase. **True**

52. In the Enhanced Unified Process, the design and implementation workflows are the primary focus of the production phase. **False**

53. In the Enhanced Unified Process, the production phase focuses exclusively on supporting workflows. **True**

54. In the Unified Process, the implementation phase focuses on the deployment workflow. **False**

55. The vision document is a deliverable in the inception phase. **True**

56. The Unified Modeling Language is a collection of terms and diagrams designed to be used in data-oriented software projects. **False**

57. The Unified Modeling Language is a collection of terms and diagrams designed to be used in object-oriented software projects **True**

58. The Unified Modeling Language is a collection of terms and diagrams designed to be used in process-oriented software projects **False**

59. In the UML, the Deployment Diagram is a behavioral diagram that illustrates the dynamic interaction of the system with its environment. **False**

60. In the UML, the Activity Diagram illustrates all the interactions between the system and its environment. **False**

61. In the UML, the Use Case Diagram illustrates all the interactions between the system and its environment **True**

62. In the UML, the Class Diagram is an example of a structure diagram. **True**

63. In the UML, the Use Case Diagram is an example of structure diagram. **False**

64. Architecture Centric development requires functional (also known as external) diagrams in addition to structure and behavioral diagrams; however, the UML only has structure

and behavioral diagrams. **True**

65. SCRUM is a type of agile development methodology. **True**

66. SCRUM has a designated team leader to lead the system development. **False**

67. It is questionable whether Scrum can scale up to develop very large, mission-critical systems. **True**

68. Dynamic binding is one of the basic characters of object-oriented systems. **True**

69. An object is same as its class since both have attributes and behaviors. **False**

70. In object-oriented systems, the encapsulation means the system simply combines processes and data into classes. **True**

71. Abstract classes can produce instances. **False**

72. Polymorphism means that the same message can be interpreted differently by different classes of objects. **True**

73. Dynamic binding is a technique that delays typing the object until run-time. **True**

Fill In the Blank

1. The process of understanding how an information system can support business needs, design the system, build it, and deliver it to users is the **SYSTEMS DEVELOPMENT LIFE CYCLE**

2. The person that identifies opportunities for improvements and designs an information system to implement them is called a(n) **SYSTEMS ANALYST**

3. The four phases of the Systems Development Life Cycle are **PLANNING, ANALYSIS, DESIGN, AND IMPLEMENTATION**

4. Understanding why an information system should be built and determining how the project team will build it is part of the **PLANNING** phase of the SDLC.

7. The **SYSTEM REQUEST** is generated by the department or person that has an idea for a new information system.

8. In the **PLANNING** phase of the SDLC the project plan is developed.

9. In the **ANALYSIS** phase of the SDLC the system proposal is developed.

10. Deciding how the hardware, software, and network infrastructure will operate occurs during the **DESIGN** phase of the SDLC.

11. In the **DESIGN** phase of the SDLC the system specification is developed.

12. Interfaces (e.g., menus, reports, forms) are specified during the **DESIGN** phase of the SDLC.

13. The phase of the SDLC when the system is actually built or purchased is the **IMPLEMENTATION** phase.

14. **WATERFALL** development is a structured design methodology that proceeds in a sequence from one phase to the next.

15. Any modern object-oriented approach to software development must be use case driven, **ARCHITECTURE-CENTRIC** and iterative and incremental.

16. Overall, the consistent notation, integration among the diagramming techniques, and application of the diagrams across the entire development process makes **UML** a powerful and flexible tool set for analysts and developers.

17. In SCRUM, teams organize themselves in a symbiotic manner and set their own goals for each **SPRINT**

18. **DYNAMIC BINDING** is one of the basic characters of object-oriented systems.

19. Polymorphism is made possible through **DYNAMIC BINDING**

20. The **ANALYSIS** phase is the fundamental process of understanding how an information system should be built and determining who on the project team will build it.

21. The new information system is purchased or built during the **IMPLEMENTATION** phase of the SDLC.

22. The role of the **PROJECT MANAGER** includes managing the team members, developing the project plan, assigning resources and serving as the primary point of contact for people outside the project team.

23. Determining who will use the system, what the system will do, and where and when it will be used is performed during the **ANALYSIS** phase of the SDLC.

24. **RAD** adjusts the SDLC phases to get some of the system developed and into the hands of the users quickly.

25. Phased development is considered a special case of **RAD APPROACH** to developing systems.

26. Kim repeatedly performs the analysis, design, and implementation phases concurrently in a cycle until the system is completed. She then goes back and from scratch does a thorough design and implementation to complete the project. She is following a **THROWAWAY PROTOTYPE** methodology.

27. **THROWAWAY PROTOTYPING** balances the benefits of well-thought-out analysis and design phases with the advantages of using prototypes to refine key issues before the system is built.

28. **PARALLEL DEVELOPMENT** relies on only one iteration of the analysis phase.

29. The primary advantage of the **WATERFALL** Development methodology is requirements are completely specified and held relatively constant prior to programming.

30. An analyst that focuses on the IS issues in a system, and who represents the interests of the IS department is called a(n) **SYSTEM ANALYST**.

31. Systems analysts Lori and Mark are employed by the local hospital. They have been assigned to develop a very complex patient monitoring system for the cardio-care unit using a new display technology. **THROWAWAY PROTOTYPING** is a very suitable methodology for this project.

32. **AGILE DEVELOPMENT** methodology aims at eliminating the modeling and documentation overhead in IS projects, while emphasizing simple, iterative application development.

33. **EXTREME PROGRAMMING** is founded on core principles such as communication, simplicity, feedback, and courage

34. In **EXTREME PROGRAMMING** programmers pair up to write the code.

35. **EXTREME PROGRAMMING** depends on refactoring to ensure that the code is kept simple.

36. You are carrying out a project that involves information systems for the operation of controls in a passenger jet craft. This is an ideal project for you to follow a(n) **THROWAWAY PROTOTYPING** methodology.

37. For urgent projects, it is a good idea to use a(n) **PROTOTYPING** methodology.

38. Project Management is a supporting workflow within the **UNIFIED PROCESS**

39. The **ENHANCED UNIFIED PROCESS** goes beyond building the system and includes

maintaining the system.

40. One of the criticisms of the Unified Process is that if fails to deal with the system after it has been **DELIVERED.**

41. Under the Unified Process, the Configuration and Change Management workflow includes **RISK** management and scope management, among several other activities.

42. Under the Unified Process, the **PROJECT** workflow includes risk management and scope management, among several other activities.

43. In the Unifies Process, analysis is a(n) **WORKFLOW**, not a phase.

44. In the **ENHANCED UNIFIED PROCESS,** the production phase focuses exclusively on supporting workflows.

45. The vision document is a deliverable in the **INCEPTION** phase.

46. The Unified Modeling Language is a collection of terms and diagrams designed to be used in **OBJECT ORIENTED** software projects

47. In the UML, the **ACTIVITY** Diagram illustrates all the interactions between the system and its environment

48. In the UML, the Class Diagram is an example of a **STRUCTURE** diagram.

49. SCRUM is a type of **AGILE DEVELOPMENT** methodology.

50. It is questionable whether **SCRUM** can scale up to develop very large, mission-critical systems.

51. Dynamic binding is one of the basic characters of **OBJECT-ORIENTED** systems.

52. In object-oriented systems, the **ENCAPSULATION** means the system simply combines processes and data into classes.

53. **POLYMORPHISM** means that the same message can be interpreted differently by different classes of objects.

54. Dynamic binding is a technique that delays typing the object until **RUN TIME**

Short Answer

1. Indicate the four phases of the waterfall approach and mention its advantages and disadvantages.

2. Briefly discuss the RAD methodology and mention its advantages and disadvantages.

3. Explain the idea of prototyping and indicate when prototyping is appropriate.

4. Explain the idea behind throw-away prototyping? When is it appropriate?

5. Describes the roles of and activities performed by the business analyst and system analyst.

6. Describes the roles of and activities performed by the infrastructure and change management analysts.

7. Explain the role of a project manager in an IS project.

8. Briefly summarize the purpose of the planning phase in SDLC. Explain why it exists and what it contributes to the completion of the system.

9. Briefly summarize the purpose of the analysis phase in SDLC. Explain why it exists and what it contributes to the completion of the system.

10. Briefly summarize the purpose of the design phase in SDLC. Explain why it exists and what it contributes to the completion of the system.

11. Briefly summarize the purpose of the implementation phase in SDLC. Explain why it exists and what it contributes to the completion of the system.

12. Briefly describe the idea behind structured design approach to systems development.

13. Briefly describe the idea behind the RAD approach to systems development.

14. Briefly summarize the role and contribution of the Business Analyst, Systems Analyst, Infrastructure Analyst, Change Management Analyst, and Project Manager on a systems development project team.

15. Briefly explain the idea behind extreme programming (XP).

16. Briefly compare and contrasts the roles and responsibilities of the project manager and the business analyst.

17. Briefly explain the idea behind Object-Oriented Systems Analysis and Design (OOSAD)

18. Briefly explain what the creators of the Unified Modeling Language (UML) mean by use-case driven, architecture centric, and iterative and incremental.

19. Briefly describe the benefits of Object-Oriented Systems Analysis and Design (OOSAD)

20. Briefly describe the Unified Process (UP).

21. Briefly describe the phases of the Unified Process.

22. Briefly explain why the Unified Process (UP) was modified.

23. Briefly describe the Unified Modeling Language (UML).

24. Briefly describe the SCRUM agile development methodology.

25. Briefly discuss the encapsulation and information hiding in object-oriented systems.

26. Briefly discuss the difference between dynamic and static binding.

27. Briefly discuss the difference between abstract classes and concrete classes.

Chapter 2: Project Management

Multiple Choices

1. The person who identifies the business value that can be gained from using information technology is called the _____.
    a. manager
    b. project sponsor
    c. staff member
    d. system analyst
    e. system request

2. In order to approve a system request, the approval committee must know
    a. all of the details of the ultimate system to be developed.
    b. the high level functionality of the system.
    c. what the screens and reports will look like in the final system.
    d. who the end users of the system will be and exactly how they will use it in their jobs.
    e. all of these.

3. _____ value can be quantified during the project initiation phase.
    a. Expected
    b. Tangible
    c. Intangible
    d. Real
    e. Salvage

4. _____ is the process of examining the technical, economic, and organizational pros and cons of developing a new system.
    a. Committee approval
    b. Feasibility analysis
    c. Functionality determination
    d. Risk analysis
    e. System request

5. Most system requests include all of the following except _____.
    a. business need
    b. business requirements
    c. project sponsor
    d. project manager
    e. business value

6. The four elements commonly found on a system request are _____.
    a. economic, organizational, technical, and operational feasibility
    b. project sponsor, business need, business requirements, and business value
    c. risk analysis, familiarity, project size, and cost-benefit analysis
    d. training, software, installation, and equipment
    e. upgrades, licensing fees, repairs, and charges

7. Suppose a proposed new financial reporting system for the AMF Biotech Corporation must be completed by the start of the next fiscal year in order to comply with new government regulations. This information should be included as part of the _____ section of the system request.
    a. business need
    b. business value
    c. business requirements
    d. special issues or constraints
    e. none of these

8. Explaining "the business capabilities of the information system" is written in the _____ section of the system request.
    a. business need
    b. business value
    c. business requirements
    d. project need
    e. special issues

9. Feasibility analysis may be defined as a(n)_____.
    a. assessment of ability of the ultimate users of the system to accept the system and incorporate it into the ongoing operations of the organization
    b. determination of the extent to which the system can be technically designed, developed, and installed
    c. guide to determining whether to proceed with a project
    d. identification of only the costs and benefits associated with the project
    e. none of these

10. Which of the following factors could be included in a technical risk assessment?
    a. Cost of a new Web server
    b. Cost of hiring a Webmaster
    c. No previous experience with Java within the IS department
    d. Some fear of job loss among order entry department personnel
    e. all of these

11. Which of the following factors would tend to increase the technical risk of a project?

a. familiarity with the technology
b. large project size
c. creating an application that is familiar to the users and analysts
d. small project size
e. the number of other applications under development in the firm

12. _____ feasibility is determined by identifying costs and benefits associated with the system.

a. Economic
b. Functional
c. Organizational
d. Intangible
e. Technical

13. Examples of development costs include all EXCEPT _____.

a. consultant fees
b. hardware expenses
c. salaries for the project team
d. software licensing fees
e. none of these

14. Operational costs that are examined during feasibility analysis include _____.

a. data conversion cost
b. development training
c. user training
d. equipment upgrades
e. initial consultant fees

15. The calculation that measures the amount of money an organization receives in return for the money it spends is called the _____.

a. cash flow
b. net present value
c. total investment
d. tangible costs
e. return on investment

16. The level of acceptance by the users of a system and the extent to which the new system will be incorporated into the operations of the organization are expressed in the _____ feasibility.

a. economic
b. familiarity
c. functional
d. organizational
e. technical

17. The project champion is a(n)_____.

a. high-level IS executive who is usually but not always the project sponsor who initiated the system request
b. mid-level IS manager who has the responsibility of controlling and directing the development process
c. **high-level non-IS executive who is usually but not always the project sponsor who initiated the system request**
d. senior member of the user group who participated in the RAD sessions
e. none of these

18. Peter is the vice president of accounting and finance. For the past year he has solely provided the resources necessary to get the just-in-time accounting system through the planning and analysis phases of the SDLC. Other managers have openly stated that the JIT system is not worth the investment. The SEC has just placed Peter under investigation for insider trading and the board has asked him to resign. This project is failing _____ feasibility analysis.

a. organizational
b. champion
c. functional
d. economic
e. technical

19. If end users feel fearful or threatened by a proposed new system, this factor should be included as a part of the _____.

a. economic feasibility assessment
b. organizational feasibility assessment
c. system proposal
d. system request
e. technical feasibility assessment

20. _____ is the process of planning and controlling the development of a system within a specified time frame at a minimum cost with the right functionality.

a. Project management
b. Semantic timeline
c. Task identification
d. Time estimation
e. Work plan

21. The most significant challenge to project managers is _____.

a. lack of project management training
b. no one really understands how to manage a complex systems development project
c. the lack of tools that can assist in controlling project progress
d. unrealistic schedule demands by project sponsors
e. all of these

22. A critical success factor for project management is to _____.

a. create a work plan
b. follow the three steps of project management
c. identify most project tasks
d. manage the hundreds of tasks
e. start with a realistic assessment of the work

23. The three steps of project management are _____.

a. controlling the project, directing the project, and creating the work plan
b. creating the work plan, staffing the project, and controlling and directing the project
c. directing the project, creating the work plan, and naming the tasks
d. naming the tasks, creating the work plan, and completing the deliverables
e. setting the start date, estimating the time, and reading the actual time

24. The _____ is a dynamic schedule that logs and monitors all of the tasks that need to be accomplished for the length of the project.

a. margin of error
b. project manager
c. project objective
d. timebox
e. work plan

25. Diane needs to create a work plan for an upcoming systems project. She must first _____.

a. estimate the hours and request deliverables
b. identify the tasks and estimate the time needed to complete them
c. initiate the project and create the project management assessment
d. make tradeoffs and set conservative numbers
e. timebox the completion date

26. To identify the tasks for a work plan the project manager can _____.

a. control and direct the project
b. estimate the size, staff the project, and remember technical skills
c. establish a possible reporting structure
d. list the four phases of the SDLC and the steps that occur in each
e. set conservative numbers for the project software

27. Project managers can develop task lists for a project with the help of _____.

a. established methodologies
b. system proposals
c. system requests
d. user application hardware
e. user requirements

28. The process of assigning values for the time and effort needed to perform a system project is called _____.

a. analysis
b. estimation
c. identifying
d. planning
e. preparation

29. Kathryn has little experience estimating the time it will take to complete a systems project. She has just completed the planning phase of the project. What method should she use to estimate the time required to build the system?

a. adjusted project complexity
b. use case points
c. industry standards
d. Microsoft Project
e. more complex approach

30. A(n) _____ is a measure of program size based on the number and complexity of inputs, outputs, queries, files, and program interfaces.

a. use case point
b. line of code
c. project plan
d. standard module
e. workplan

31. Use case points are used to measure the estimated _____ of a project.

a. complexity
b. effort required
c. program size
d. time required
e. TUF

35. Adding people to a project team in order to speed up total development time _____.

a. is a standard task in timeboxing
b. is a useful way to meet a tight deadline
c. may actually increase total development time
d. simplifies communication within the team
e. none of these

36. Traditional Work Breakdown Structures tend to

a. focus on the design of the system as oppose to the needs of the current phase and iteration
b. force too many levels of detail early on for large project and they tend to allow too few level of detail for small projects
c. be too specific for the project and difficult to compare across projects

d. all of these
e. none of these

37. Unlike traditional Work Breakdown Structures (WBS), *evolutionary* WBSs are
a. organized in a standard manner across all projects
b. created in an iterative and incremental manner
c. designed so one can compare the current project to past projects
d. all of these
e. none of these

38. Staffing plan that lists the roles and the proposed reporting structure that are required for the project. Typically, a project will have one _____, who oversees the overall progress of the development effort, with the core of the team comprising the various types of analysts.
a. team lead
b. functional lead
c. technical lead
d. project manager
e. business analyst

39. Demarco and Lister identify five characteristics of a jelled team. Which one is not the characteristics of a jelled team:
a. Jelled teams have a very low turnover during a project.
b. Jelled teams have a strong sense of identity.
c. The strong sense of identity tends to lead the team into feeling a sense of eliteness.
d. during the development process, jelled teams feel that the team owns the information system being developed and not any one individual member.
e. They always complete their work on time.

40. The central component of any CASE tool is the _____,
a. CASE repository
b. files
c. XML/HTML files
d. databases
e. object persistency

41. Use-case points is a project effort estimation approach based on unique features of _____ and object orientation.
a. functions
b. classes
c. objects
d. projects

e. use cases

42. For use-case point estimation purposes, actors can be classified as simple, _____, or complex.

a. difficult
b. medium
c. average
d. common
e. feasible

43. Use-case point–based estimation also has a set of factors that are used to adjust the use-case point value. Which one list in the following is Not one of the technical factors:

a. Whether the system is going to be a distributed system
b. The importance of customer service
c. The efficiency level of the end user using the system
d. The complexity of the internal processing of the system
e. The importance of code reuse

True/False

1. Familiarity with the application and technology are major factors considered under economic feasibility. **FALSE**

2. Cost benefit analysis identifies the financial costs and benefits associated with a systems project. **TRUE**

3. To identify the costs and benefits related to the computer technology for a project the systems analyst should rely on the business users. **FALSE**

4. Happy customers is a tangible cost that can be included in a cost-benefit analysis. **FALSE**

5. A 20% increase in sales volume is a tangible benefit that can be included in a cost-benefit analysis. **TRUE**

6. A limitation of a formal cost-benefits analysis is that it contains the costs and benefits for just one year.

ANS - FALSE

7. A high return on investment (ROI) results when benefits far outweigh the cost of a new project or information system. **TRUE**

8. How well a system is accepted by the users and incorporated into the ongoing operations of the business is defined in the technical feasibility. **FALSE**

9. Project size is an important consideration in technical feasibility. Larger projects create more risk, both because they are more complicated to manage and because there is a greater chance that some important system requirements will be overlooked or misunderstood. **TRUE**

10. Economic feasibility includes an assessment of financial impact in four categories: (1) development costs, (2) operational costs, (3) tangible benefits, and (4) intangible costs and benefits. **TRUE**

11. The return on investment (ROI) should be used as the sole indicator of a project's worth because it considers the end points of the investment, not the cash flow in between. **FALSE**

12. User participation should be promoted throughout the development process to make sure that the final system will be accepted and used. **TRUE**

13. Economic feasibility is determined by identifying costs and benefits associated with the system, assigning values to them, and then calculating the cash flow and return on investment for the project. **TRUE**

14. The champion is a high-level IS executive who initiates the system request and supports the project by providing time, resources, and political support within the organization by communicating the importance of the system to other organizational decision makers. **FALSE**

15. Economic feasibility focuses on whether the system can be built by examining the risks associated with the users' and analysts' familiarity with the application, familiarity with the technology, and project size. **FALSE**

16. It is not necessary to assign dollar values to intangible costs and benefits; it is almost impossible to come up with reasonable numbers for all of the costs and benefits that haven't happened yet. **FALSE**

17. Project initiation begins when the project sponsor identifies business value that can be gained by using information technology. **TRUE**

18. System requests often include the project team members including the project manager and the analysts. **FALSE**

19. A feasibility analysis includes whether the project has been permitted by the CIO of the company.

ANS - FALSE

20. The feasibility analysis helps the approval committee determine whether or not to proceed with a project. **TRUE**

21. Technical feasibility focuses on whether the system can be built by examining the risks associated with the application. **TRUE**

22. Lauren, a systems analyst, is concerned that she and the end-users at her company do not have experience with a new scanner technology that will soon be implemented. This identified risk falls under economic feasibility. **FALSE**

23. Nicole has identified development and operational costs for a soon-to-be built information system. Her findings will be listed under economic feasibility in the analysis report. **TRUE**

24. Development costs that are examined during feasibility analysis include costs for software licenses and software upgrades.

ANS - FALSE

25. Natalie has been asked by her project manager to list the possible intangible benefits for a new system. Her list will include reduced expenses for the company. **FALSE**

26. ROI calculations do not consider the present value of future money. **TRUE**

27. Organizational feasibility can be evaluated by conducting a(n) stakeholder analysis. **TRUE**

28. Kelly Smith, the vice president of marketing, has provided resources and political support for the new production management information system. She has acted as the project manager for the project. **FALSE**

29. The person or group that funds a project and enthusiastically promotes the project throughout the organization is the project champion. **TRUE**

30. The organizational management of a business is involved in hands-on activities related to the project. **FALSE**

31. During organizational feasibility analysis the system users are the stakeholders that are responsible for providing enough budget and promoting the project. **FALSE**

32. System users are stakeholders who perform hands-on activities related to the project. **TRUE**

33. Present value calculation takes inflation and time into account. **TRUE**

34. The formula for net present value (NPV) is the ratio of (Total benefits – Total Costs) to Total Costs. **FALSE**

35. Calculating the break-even point helps in understanding how long it will take before the system creates real value for the organization. **TRUE**

36. Determining whether the new system will be compatible with the existing technology that already exists in the organization is part of the organizational feasibility study. **FALSE**

37. Project management is the process of planning and controlling the development of a system within a specified time frame at a minimum cost with the right functionality. **TRUE**

38. When planning a systems project, overly optimistic timetables are the cause of project completion delays. **TRUE**

39. Creating a work plan requires three steps: identify the tasks that need to be accomplished, estimate the time that it will take to complete the tasks, and record the task completion time in a Gantt Chart.

    ANS – FALSE

40. When estimating project time schedules using industry standards for a systems project, the following values are acceptable: 15% for planning, 25% for analysis, 50% for design, and 10% for implementation. **FALSE**

41. Using typical industry standards for estimating project time schedules, the estimated analysis phase would be 10 person-months for a systems project where the planning phase was completed in 7.5 person-months. **TRUE**

42. To complete a 20 person-month project in 10 months, a team should have 4 full-time staff members assigned to the project. **FALSE**

43. Project management is the second major component of the planning phase of the systems development life cycle (SDLC), and it includes three steps: creating the work plan, staffing the project, and controlling and directing the project. **TRUE**

44. The work plan records and keeps track of all of the tasks that need to be accomplished over the life of the project, listing each task, along with important information about it, such as when it needs to be completed, the person assigned to do the work, and any deliverables that will result. **YRUE**

45.It is not wise to identify tasks for a current project using existing methodology, because methodologies that have been used by an organization for other projects probably will not work for this project without extensive changes. **FALSE**

46. One of the greatest weaknesses of systems consulting firms is that they try to apply estimates and methodologies that they have developed over time and applied to other projects, most of which are very different from the current project. **FALSE**

47. Adding staff to a project to shorten the project's length is usually a wise move, because adding staff normally translates into increased productivity. **FALSE**

48. Timeboxing is a popular technique which sets a fixed deadline for a project and delivers the system by that deadline no matter what, even if functionality needs to be reduced. **TRUE**

49. A key factor in staffing a project involves motivating people to meet the project's objectives, and the most effective way to do this is through the use of money and bonuses. **FALSE**

50. Estimates from the planning stage will need to be refined as the project progresses, because it is virtually impossible to develop an exact assessment of the project's schedule before the analysis and design phases are conducted. **TRUE**

51. Benefits to using computer-aided software engineering (CASE) include faster task completion and alteration, centralized development information, and illustration of information through diagrams. **TRUE**

52. Scope creep is only a minor factor in projects running over schedule, and every effort should be made to incorporate any changes into the present system if they would truly be beneficial.

ANS - FALSE

53. Sergei, the project manager, is worried about completing the project on time. To increase the productivity of his 15-person team he should create subteams with no more than 10 people on a subteam. **TRUE**

54. The project team has just determined that the deadline for completion will not be met. In order to deliver a high quality system on schedule, the team has requested that the features be prioritized and that a fixed deadline be imposed for the project. This technique is referred to as SDLC methodology. **FALSE**

55. Timeboxing is a time-oriented approach to project development. **TRUE**

56. Matching people's skills with the needs of the project, motivating employees, and minimizing personnel conflict are all part of the staffing process. **TRUE**

57. The project charter describes the qualifications of the people who will work on a project and the reporting structure of the project team. **FALSE**

58. The document that describes the project's objectives and rules is called the project charter. **TRUE**

59. Lauren, a systems analyst, has excellent interpersonal skills. To take advantage of her skills, the functional lead of the project should assign her to program in Java and C++. **FALSE**

60. A functional lead manages a group of programmers and technical staff members. **FALSE**

61. A technical lead manages a group of analysts. **FALSE**

62. Christine does not have the skills that her project manager feels are necessary and no money has been budgeted for outside consultants. Mentoring is a good option to improve Christine's skills in this situation. **TRUE**

63. Daniel has just been assigned as the project manager. To motivate his team properly, Daniel's first step is to award bonuses to team members. **FALSE**

64. A highly effective motivational technique for technical staff is to provide recognition for each team member's accomplishments.**TRUE**

65. A good technique to help minimize conflict among team members is to hold team members accountable for their tasks. **TRUE**

66. According to leading experts in software development, the margin of error when estimating project costs is 100% and the margin of error in project scheduling time is 25%. **TRUE**

67. CASE tool is a popular graphic depiction of the work plan that lists project tasks along a y-axis, time along an x-axis, and uses shaded boxes to represent tasks. **TRUE**

68. PERT chart can be used to track the tasks of a project when task time estimates are fairly uncertain. **TRUE**

69. Integrated CASE tools are used to support tasks that happen throughout the SDLC. **TRUE**

70. Jim Smith, the project manager for a high-profile project, has permitted the users to add additional features to the systems project. The schedule and costs are now running over. This project suffers from poor standards. **FALSE**

71. The underlying cause of many missed project deadlines is scope creep. **TRUE**

72. The most common reason for schedule and cost overruns that surface after the project is underway is scope creep. **TRUE**

73. The traditional Work Breakdown Structure approach is very useful when the requirements of the system are not well understood. **FALSE**

74. The evolutionary Work Breakdown Structure approach is very useful when the requirements of the system are not well understood. **TRUE**

75. The traditional Work Breakdown Structure makes it easy to compare the current project with past projects. **FALSE**

76. The evolutionary Work Breakdown Structure makes it easy to compare the current project with past project **TRUE**

77. Use-case point–based estimation also has a set of factors that are used to adjust the use-case point value. **TRUE**

78. From a practical point of view, to estimate effort using use-case points, the use cases and the class diagrams must have been created. **FALSE**

79. For use-case point estimation purposes, actors/use cases can be classified as simple, common, or complex. **TRUE**

80. The network diagram is a graphical way that lays out the project tasks in a flowchart to look at project work plan information. **TRUE**

81. Network diagrams are the best way to communicate tasks dependencies because they lay out the tasks in the order in which they need to be completed. **TRUE**

82.The critical path in a network diagram is the shortest path from the project inception to completion. **FALSE**

83. The science (or art) of project management is in making trade-offs among three important concepts: the functionality of the system, the time to complete the project, and the reliability of the project. **FALSE**

84. The first step of timeboxing is set the date for system analysis. **FALSE**

85. In a jelled team, team members enjoy doing their work. **TRUE**

86. Usually, a functional lead oversees the progress of a group of programmers and more technical staff members. **FALSE**

87. Typically, a project will have one project manager, who oversees the overall progress of the development effort. **TRUE**

88. Typically, a technical lead is usually assigned to manage a group of analysts.**FALSE**

89. Essentially a daily scrum meeting is a very short, typically 15 minutes. **TRUE**

90. Typically, the task of a daily scrum meeting is to find solutions for important development issues. **TRUE**

Fill in the Blanks

1. The person who identifies the business value that can be gained from using information technology is called the **PROJECT SPONSOR**.

2. **TANGIBLE** value can be quantified during the project initiation phase.

3. **FEASIBILITY ANALYSIS** is the process of examining the technical, economic, and organizational pros and cons of developing a new system.

4. Suppose a proposed new financial reporting system for the AMF Biotech Corporation must be completed by the start of the next fiscal year in order to comply with new government regulations. This information should be included as part of the **SPECIAL ISSUES OR CONSTRAITS** section of the system request.

5. Explaining "the business capabilities of the information system" is written in the **BUSINESS REQUIREMENTS** section of the system request.

6. **ECONOMIC** feasibility is determined by identifying costs and benefits associated with the system.

7. The calculation that measures the amount of money an organization receives in return for the money it spends is called the **ROI**.

8. The level of acceptance by the users of a system and the extent to which the new system will be incorporated into the operations of the organization are expressed in the **ORGANIZATIONAL** feasibility.

9. Peter is the vice president of accounting and finance. For the past year he has solely provided the resources necessary to get the just-in-time accounting system through the planning and analysis phases of the SDLC. Other managers have openly stated that the JIT system is not worth the investment. The SEC has just placed Peter under investigation for insider trading and the board has asked him to resign. This project is failing **ORGANIZATIONAL** feasibility analysis.

10. If end users feel fearful or threatened by a proposed new system, this factor should be included as a part of the **organizational feasibility assessment**.

11. **PROJECT MANAGEMENT** is the process of planning and controlling the development of a system within a specified time frame at a minimum cost with the right functionality.

12. The **WORK PLAN** is a dynamic schedule that logs and monitors all of the tasks that need to be accomplished for the length of the project.

17. Staffing plan that lists the roles and the proposed reporting structure that are required for the project. Typically, a project will have one **PROJECT MANAGER**, who oversees the overall progress of the development effort, with the core of the team comprising the various types of analysts.

18. The central component of any CASE tool is the **CASE REPOSITORY**

19. Use-case points is a project effort estimation approach based on unique features of **USE CASES** and object orientation.

20. **COST BENEFIT ANALYSIS** identifies the financial costs and benefits associated with a systems project.

21. A 20% increase in sales volume is a **TANGIBLE** benefit that can be included in a cost-benefit analysis.

22. A high **ROI** results when benefits far outweigh the cost of a new project or information system.

23. **ECONOMIC FEASIBILITY** includes an assessment of financial impact in four categories: (1) development costs, (2) operational costs, (3) tangible benefits, and (4) intangible costs and benefits.

24. **USER PARTICIPATION** should be promoted throughout the development process to make sure that the final system will be accepted and used.

25. **ECONOMIC FEASIILITY** is determined by identifying costs and benefits associated with the system, assigning values to them, and then calculating the cash flow and return on investment for the project.

26. **PROJECT INITIATION** begins when the project sponsor identifies business value that can be gained by using information technology.

27. The **FEASIBILITY ANALYSIS** helps the approval committee determine whether or not to proceed with a project.

28. **Technical Feasibiluty** focuses on whether the system can be built by examining the risks associated with the application.

29. Nicole has identified development and operational costs for a soon-to-be built information system. Her findings will be listed under **ECONOMIC FEASIBILITY** in the analysis report.

30. **ORGANIZATIONAL FEASIBILITY** can be evaluated by conducting a(n) stakeholder analysis.

31. The person or group that funds a project and enthusiastically promotes the project throughout the organization is the **PROJECT SPONSOR**

32. **TIME VALUE MONEY** calculation takes inflation and time into account.

33. Calculating the **BREAK EVEN POINT** helps in understanding how long it will take before the system creates real value for the organization.

34. **PROJECT MANAGEMENT** is the process of planning and controlling the development of a system within a specified time frame at a minimum cost with the right functionality.

35. **TIMEBOXING** is a popular technique which sets a fixed deadline for a project and delivers the system by that deadline no matter what, even if functionality needs to be reduced.

36. The document that describes the project's objectives and rules is called the **PROJECT CHARTER**

37. **PERT** chart can be used to track the tasks of a project when task time estimates are fairly uncertain.

38. Integrated **CASE** tools are used to support tasks that happen throughout the SDLC.

39. The most common reason for schedule and cost overruns that surface after the project is underway is **SCOPE CREEP**.

40. The evolutionary **PROTOTYPING** approach is very useful when the requirements of the system are not well understood.

41. The evolutionary Work Breakdown Structure makes it easy to compare the current project with past project **TRUE**

42. The **NETWORK DIAGRAM** is a graphical way that lays out the project tasks in a flowchart to look at project work plan information.

43. **NETWORK DIAGRAM** are the best way to communicate tasks dependencies because they lay out the tasks in the order in which they need to be completed.

44. In a **JELLED** team, team members enjoy doing their work.

Short Answer

1. Economic feasibility includes an assessment of financial impacts in four categories. What are these four financial categories and how are values assigned to each?

2. Jane, the head nurse on the surgery recovery floor, is going to place a request for a system that will create a report from data already in the patient record system and print this report to printers located just outside each of 12 patient's rooms and the central nurses station. Jane feels that a graphical report that combines the patient record of pain and pain medication received is absolutely necessary for the doctors and nursing staff to make proper medical decisions concerning patient recovery. Nurses already record the date, time, and severity of pain each time the patient complains or notifies them of discomfort. The pharmacy nurse records the amount of pain medication administered to each patient immediately after administration. Jane feels that combining these two pieces of information will improve medical decision making and provide better care to the patient. In addition, this method will increase the accuracy of reporting and reduce cost. Assist Jane by completing a System Request.

3. Jane, the head nurse on the surgery recovery floor, is going to place a request for a system that will create a report from data already in the patient record system. This report should be sent to new printers (cost per printer is approximately $2,000) located just outside each of 12 patient's rooms and the central nurse's station. Jane feels that a graphical report that combines the patient record of pain and pain medication received is absolutely necessary for the doctors and nursing staff to make proper medical decisions concerning patient recovery. Nurses already record the date, time, and severity of pain each time the patient complains or notifies them of discomfort. The pharmacy nurse records the amount of pain medication administered to each patient immediately after administration. Jane feels that combining these two pieces of information will improve medical decision making and provide better care to the patient. The IS manager has approved $50,000 for the development of the system and estimates that maintaining the system for the next five years will cost $2,000 per year. In addition, this method will increase the accuracy of reporting by 10% per year for three years and reduce pharmacy costs (cost of pain reducing drugs) by 15% in the first year of introduction. Current expenses credited to inaccurate data gathering are $100,000 per year. Pharmacy costs are currently $10 million.

Identify the costs and benefits in the four financial categories assessed during a feasibility analysis.

4. Revenue estimates for CD Selection's new Internet music business were computed using three different methods. What is the purpose and value of performing so many computations

in determining these estimates?

5. The feasibility study is performed during project initiation. How can this feasibility assessment be accurate so early in the project? Explain.

6. Assigning values to costs and benefits involves making some difficult predictions of the future. How can the project team improve the accuracy of these estimates?

7. Compare and contrast the Cash Flow, Return on Investment, and Net Present Value methods of assessing a project's economic feasibility.

8. Explain the role and interests of the project champion, organizational management, and end users regarding a new system project. How will each impact the organizational feasibility of the project?

9. Why is it important for systems developers to consider the area of organizational politics when creating a new system?

10. Explain different sections of a system request.

11. Explain the three different aspects of a feasibility analysis.

12. Identify the seven steps involved in conducting the economic feasibility.

13. Explain the role of the project champion.

14. Explain four different dimensions that a technical feasibility analysis should consider.

15. Outline the three important components for staffing a project. Include topics such as matching peoples' skills with project needs, motivating team members, and minimizing conflict. Structure the essay into three or more paragraphs, one for each component.

16. A project manager has three options to take when a schedule date has been missed. What are the basic assumptions the project manager can make? What changes to the schedule should the manager make for each assumption? What is the level of risk for each assumption?

17. Describe three classic planning mistakes. What would be a solution for each?

18. What can be done when the skills needed for a project are not found in the staff that is available for the project?

19. Discuss the options a project manager has if a phase of a project is completed (a) earlier than expected, and (b) later than expected.

20. Explain the consequences of a project manager allowing the scope of a project to gradually increase. Why does 'scope creep' occur?

21. For what reason does a project team create a risk assessment? What value is a risk assessment to the team?

22. Sunnyview Hospital needs to create a new patient-record system. Their current manual system is inadequate, and results in many errors in the records for the patients in their care. At this point in time, the users do not have a good idea of what they need the new system to do, but they need it done quickly. Create a risk assessment for this system.

23. Give the formula for the effort in person-months based on the number of lines of code.

24. Explain the concept of timeboxing.

25. Give the formula for the schedule time in months, given the effort in person-months.

26. Explain PERT analysis.

27. What are different types of standards that a project may need to adhere to.

28. Explain how daily scrum meeting is used for manage the scope of project.

29. Explain how daily product backlog is used for manage the scope of project.

30. Explain why the evolutionary Work Breakdown Structure (WBS) is preferable for certain project over the traditional WBS.

31. Briefly describe three types of standards for system development, and provide examples of each.

32. What is a use-case point? For what is it used?

33. What process do we use to estimate systems development based on use cases?

34. What are the differences between a technical lead and a functional lead?

Chapter 3: Requirements Determination

Multiple Choices

1. _____ is an example of functional requirements.

    a. The system should work with any web browser
    b. The system should load any web page within 3 seconds
    c. Customers should be able to see their orders after authentication
    d. The system should comply with the company's policy of buying all PCs and servers from Dell
    e. The system should be able to search all available inventory in order to determine whether a product can be made by a given date

2. Understanding the as-is system, identifying improvements, and developing requirements for the to-be system are the steps of the _____ phase.

    a. analysis
    b. design
    c. implementation
    d. planning
    e. SDLC

3. The goal of _____ analysis strategy is to make minor or moderate changes to the business processes so that they will become more efficient and effective.

    a. business process automation
    b. business process benchmarking
    c. business process improvement
    d. business process reengineering
    e. business process systemization

4. The goal of this analysis strategy is to change the fundamental way the organization operates and to make major changes by taking advantage of new ideas, methods and technology.

    a. business process automation
    b. business process benchmarking
    c. business process improvement
    d. business process reengineering
    e. business process systemization

5. Which of the following analysis strategies incurs the highest risk yet has the potential to provide high value to the business?

a. Business Process Automation
b. Business Process Improvement
c. Business Process Reengineering
d. Business Process Renovation
e. Root cause analysis

6. The most comprehensive and complete deliverable of the analysis phase is _____.

a. project work plan
b. system proposal
c. behavioral models for the to-be system
d. functional models for the to-be system
e. structural models for the to-be system

7. The most commonly used information-gathering technique is _____.

a. interviewing
b. joint application design (JAD) sessions
c. document analysis
d. observation
e. questionnaires

8. During an interview, the following question is asked; “How many times during a typical week does a customer complain about inadequate service following a sale?” This question is an example of a (n) _____ question.

a. Opinion-generating
b. Eye-opening
c. open-ended
d. closed-ended
e. probing

9. Sarah would like to give the interviewee more control over the interview and to gather rich information. She should ask _____ questions.

a. closed-ended
b. inappropriate
c. open-ended
d. opinion
e. probing

10. The information gathering technique that is most effective in combining information from a variety of perspectives, building consensus, and resolving discrepancies is a(n) _____.

a. document analysis
b. interview
c. joint application development
d. observation
e. questionnaire

11. A JAD session can reduce scope creep by _____.

a. 10%
b. 20%
c. 40%
d. 50%
e. 75%

12. A JAD facilitator is _____.

a. the person who sets the meeting agenda and guides the discussion
b. the person who records the discussion
c. participates in the discussion
d. is also a power user
e. none of these

13. The information gathering technique that enables the analyst to collect facts and opinions from a wide range of geographically dispersed people quickly and with the least expense is the _____.

a. document analysis
b. interview
c. JAD session
d. observation
e. questionnaire

14. The examination of existing paperwork in order to better understand the As-Is system is an example of what information-gathering strategy?

a. document analysis
b. interviewing
c. joint application design (JAD) sessions
d. observation
e. questionnaires

15. What information-gathering strategy enables the analyst to see the reality of the situation rather than listen to others describe it?

a. document analysis
b. interviewing
c. joint application design (JAD) sessions
d. observation
e. questionnaires

16. The _____ brings together into a single comprehensive document the material created during planning and analysis

a. project charter
b. system proposal
c. system request
d. requirements document
e. vision document

17. The functional model component of the system proposal includes _____.

a. a activity diagram
b. a set of use case descriptions
c. a use case diagram
d. all of these
e. none of these

18. Concept maps allow the relationships among the _____to be explicitly represented.

a. entity relations
b. functional requirements
c. functional and nonfunctional requirements
d. nonfunctional requirements
e. system proposals

19. A concept map is essentially a node-and-arc representation, where the nodes represent the individual requirements and the arcs represent the _____ among the requirements.

a. relationships
b. data flow
c. constraints
d. conditions
e. communications

20. Both story cards and task lists are considered to be "_____" approaches to documenting and gathering requirements.

a. heavy weight
b. lite weight
c. formal
d. dummy
e. casual

21. The executive summary in system proposal is typically no more than _____ page(s) long.

a. one
b. two
c. three
d. four
e. five

22. From a quality perspective, _____ quality is related to the degree that the software meets the functional requirements.

a. functional
b. non-functional
c. standard
d. security
e. reliability

23. The _____ requirements are associated with the efficiency, maintainability, portability, reliability, reusability, testability, and usability quality dimensions..

a. functional
b. non-functional
c. standard
d. correctness
e. performance

24. When considering ISO9000 compliance, quality dimensions are further decomposed into _____ and _____.

a. required and non-required
b. essential and non-essential
c. functional and non-functional
d. internal and external
e. reliable and non-reliable

True/False

1. The analysis phase of the SDLC ends when a system proposal for the new system is presented to the approval committee. **TRUE**

2. The three fundamentally different strategies for the analysis phase (business process automation, business process improvement, and business process reengineering) are stand-alone strategies and should not be combined in the analysis process. **FALSE**

3. Benchmarking refers to studying how other organizations perform a business process so you can learn how your organization can do it better. **TRUE**

4. The interview schedule lists all the people who will be interviewed, when, and for what purpose. **TRUE**

5. Open-ended questions gather rich information because they are questions that permit the interviewee to elaborate on answer. **TRUE**

6. It is easier to ask an interviewee what is used to perform a task than it is to show the interviewee a form and ask what information on the form is used. **FALSE**

7. "How can you reduce the number of errors in the name and address field on the data entry screen?" is an example of a high-level question. **FALSE**

8. Following an interview the analyst should always prepare an interview report that describes the information gathered from the interview. **TRUE**

9. The standard approach to select who should complete a questionnaire during information gathering is to sample only those departments that do not have direct contact with the As-Is system. **FALSE**

10. To better understand the As-Is system the project team members can perform document analysis on existing forms, reports, and business process models. **TRUE**

11. Observation is a powerful tool for gathering information about the As-Is system and may be necessary because managers often do not remember how they work and how they allocate their time. **TRUE**

12. JAD is the appropriate technique for gathering information about the As-Is and To-Be systems: it that identifies improvements, and has a high amount of user involvement. **TRUE**

13. Document analysis and observation are commonly used for understanding the As-Is system because they are useful for obtaining facts. **TRUE**

14. Questionnaires are often used when there is only a small number of people from which information and opinions are needed, because it is difficult to get a large number of participants to return questionnaires on a timely basis. **TRUE**

15. Joint application design (JAD) sessions are specifically designed to improve integration of information, because all information is combined when it is collected, not afterward. **TRUE**

16. Questions on questionnaires should be open-ended to allow the respondent the freedom to express his/her opinion since the analyst will not be able to follow up with additional questions as could be done in a one-on-one interview. **FALSE**

17. Because it is important not to disrupt the normal business function, joint application design (JAD) sessions should be held at a location easily accessible to the participants' office staffs, and attendees should be those most easily released from regular duties and least likely to be missed. **FALSE**

18. The top-down approach is an appropriate strategy for most interviews because it enables the interviewee to become accustomed to the topic before he or she needs to provide specifics and it enables the interviewer to understand the issues before moving to the details. **TRUE**

19. When you begin an interview, the first goal is to establish control and let the interviewee know that you have a mastery of the subject. **FALSE**

20. Root cause analysis attempts to find solutions for the business problems. **FALSE**

21. Tracy has decided to ask the users and managers to identify problems with the current system and to recommend how to solve these problems in the future system. They have recommended small incremental changes. Tracy is identifying improvement opportunities through problem analysis. **TRUE**

22. Jessica has asked the users to generate a list of problems with the current system and to prioritize the problems in order of importance. Jessica then generated all the possible causes for the problems, starting with the most important. Jessica is identifying improvement opportunities through root cause analysis. **TRUE**

A23. An analyst for an insurance company determined that the overall time required to process a property damage insurance claim is 21 business days. When the analyst decomposes the process into steps and aggregates the total time requirements for all steps, she discovers a total time of 12 hours. The analyst is employing the activity-based costing analysis technique. **FALSE**

24. A systems analyst is participating in an exchange of services with another organization. First, the analyst visits the partner organization, studies and evaluates their systems, and recommends changes and improvements. Then, a team of analysts from the partner organization visits the

analyst's organization and performs the same service. This process is an example of benchmarking. **TRUE**

25. Amanda had the managers at her company develop a list of important and interesting technologies and how each technology could be applied to current business process. Amanda is identifying improvement opportunities through technology analysis. **TRUE**

26. An analysis team consisting of users, managers, and analysts, are in the midst of a daylong meeting. They are working on systematically evaluating the consequences of removing every activity from the current business process. The team is performing activity-based costing. **FALSE**

27. Activity-based costing is similar to duration analysis. While duration analysis attempts to find the time taken to complete business processes, activity-based costing finds the costs associated with each of the basic functional steps or processes. **TRUE**

28. A systems analyst has prepared an interview agenda that begins with a number of specific, detailed questions, and then asks the interviewee to make general statements about the policies and procedure of the business process. The analyst is following a top-down interview structure. **FALSE**

29. An interview style that seeks a broad and roughly defined set of information is commonly called the unstructured interview style. **TRUE**

30. Kristin, a systems analyst, needs to know detailed information about the accounts receivable process, but she is not concerned with accounts payable or general ledger, or the integration of this information. Her analysis will assist her in designing a To-Be system for the accounts receivable department. The appropriate requirements-gathering technique to be used would be interviewing. **TRUE**

31. A fundamental disadvantage of the JAD sessions is that they are subject to be dominated by a few. e-JAD attempts to eliminate this disadvantage. **TRUE**

32. The executive summary is an important component of the system proposal because it is used for convincing the busy executives of the merits of the project as birefly as possible. **FALSE**

33. A requirement is a statement of what the system must do and how it will be implemented.

34. Concept maps are easier to represent the nonfunctional requirements relationships than typical textual approaches. **FALSE**

35. Joint Application Design (JAD) is always the better requirements-gathering technique than others. In practice, every project should only JAD. **FALSE**

36. One of advantage of concept maps over typical textual approach is that concepts maps allow the relationships among the functional and nonfunctional requirements to be explicitly represented. **FALSE**

37. Both story cards and task lists requirements documentation techniques are considered to be detail approaches to documenting and gathering requirements. **FALSE**

38. A system proposal brings together into a SINGLE comprehensive document the material created during planning and analysis. **FALSE**

39. The executive summary in system proposal provides all critical information in a very detail form. **FALSE**

40. Virtually all of the quality models differentiate functional and non-functional requirements.

Fill in the Blanks

1. Understanding the as-is system, identifying improvements, and developing requirements for the to-be system are the steps of the ___**analysis**__ phase.

2. The goal of ___**business process improvement**___ analysis strategy is to make minor or moderate changes to the business processes so that they will become more efficient and effective.

3. The goal of the __**business process reengineering**__ analysis strategy is to change the fundamental way the organization operates and to make major changes by taking advantage of new ideas, methods and technology.

4. The _____ analysis strategy incurs the highest risk yet has the potential to provide high value to the business.

5. The most comprehensive and complete deliverable of the analysis phase is **_system proposal**_.

6. The most commonly used information-gathering technique is **interviewing**_.

7. During an interview, the following question is asked; “How many times during a typical week does a customer complain about inadequate service following a sale?” This question is an example of a (n) **closed-ended** question.

8. Sarah would like to give the interviewee more control over the interview and to gather rich information. She should ask **_Open-ended**____ questions.

9. The information gathering technique that is most effective in combining information from a variety of perspectives, building consensus, and resolving discrepancies is a(n) **_joint application development**____.

10. A JAD facilitator is **_the person who sets the meeting agenda and guides the discussion**____.

11. The information gathering technique that enables the analyst to collect facts and opinions from a wide range of geographically dispersed people quickly and with the least expense is the **_Questionnaire**__.

12. The examination of existing paperwork in order to better understand the As-Is system is an example of the _**document analysis**__ strategy.

13. The _____ strategy enables the analyst to see the reality of the situation rather than listen to others describe it?

14. The _**system proposal**__ brings together into a single comprehensive document the material created during planning and analysis

15. Concept maps allow the relationships among the __**functional and nonfunctional requirements**__to be explicitly represented.

16. A concept map is essentially a node-and-arc representation, where the nodes represent the individual requirements and the arcs represent the __**relationship**___ among the requirements.

17. Both story cards and task lists are considered to be "__**lite weight**__**"** approaches to documenting and gathering requirements.

18. The executive summary in system proposal is typically no more than ___**one**__ page(s) long.

19. From a quality perspective, __**functional**__ quality is related to the degree that the software meets the functional requirements.

20. The _**Non-Functional**__ requirements are associated with the efficiency, maintainability, portability, reliability, reusability, testability, and usability quality dimensions..

21. When considering ISO9000 compliance, quality dimensions are further decomposed into _**External**_ and ___**Internal**__**.**

22. The _____ of the SDLC ends when a system proposal for the new system is presented to the approval committee.

23. _____refers to studying how other organizations perform a business process so you can learn how your organization can do it better.

24. The interview schedule lists all the people who will be interviewed, when, and ____ _**What purpose**___ _____

25. __**Open ended**_ questions gather rich information because they are questions that Permit the interviewee to elaborate on answer.

26. Following an interview the analyst should always prepare a(n) _**interview report**__ that describes the information gathered from the interview.

27. To better understand the __**As-Is system**___ the project team members can perform document analysis on existing forms, reports, and business process models.

28. Observation is a powerful tool for gathering information about the __**As-Is system**__ and may be necessary because managers often do not remember how they work and how they allocate their time.

29. ____**JAD**____+ is the appropriate technique for gathering information about the As-Is and To-Be systems: it that identifies improvements, and has a high amount of user involvement.

30. _**Document analysis and observation**__ and observation are commonly used for understanding the As-Is system because they are useful for obtaining facts.

31. __**Questionnaires** __ are often used when there is only a small number of people from which information and opinions are needed, because it is difficult to get a large number of participants to return questionnaires on a timely basis.

32. __**Joint application design (JAD) sessions** __sessions are specifically designed to improve integration of information, because all information is combined when it is collected, not afterward.

33. The _ **The top-down approach**____ is an appropriate strategy for most interviews because it enables the interviewee to become accustomed to the topic before he or she needs to provide specifics and it enables the interviewer to understand the issues before moving to the details.

34. Tracy has decided to ask the users and managers to identify problems with the current system and to recommend how to solve these problems in the future system. They have recommended small incremental changes. Tracy is identifying improvement opportunities through __**Problem Analysis**___

35. Jessica has asked the users to generate a list of problems with the current system and to prioritize the problems in order of importance. Jessica then generated all the possible causes for the problems, starting with the most important. Jessica is identifying improvement opportunities through **__root cause analysis**____

36. A systems analyst is participating in an exchange of services with another organization. First, the analyst visits the partner organization, studies and evaluates their systems, and recommends changes and improvements. Then, a team of analysts from the partner organization visits the analyst's organization and performs the same service. This process is an example of __**Benchmarking**___.

37. Amanda had the managers at her company develop a list of important and interesting technologies and how each technology could be applied to current business process. Amanda is identifying improvement opportunities through _**Technology Analysis**__ analysis.

38. An interview style that seeks a broad and roughly defined set of information is commonly called the ___**unstructured**___ interview style.

39. Kristin, a systems analyst, needs to know detailed information about the accounts receivable process, but she is not concerned with accounts payable or general ledger, or the integration of this information. Her analysis will assist her in designing a To-Be system for the accounts receivable department. The appropriate requirements-gathering technique to be used would be ___**Interviewing**___**.**

40. A fundamental disadvantage of the JAD sessions is that they are subject to be dominated by a few. __**e-JAD**___ attempts to eliminate this disadvantage.

41. _**Concept Maps**___ are easier to represent the nonfunctional requirements relationships than typical textual approaches.

42. A system proposal brings together into a **SINGLE** comprehensive document the material created during planning and analysis.

43. Virtually all of the quality models differentiate ___**functional**____ and ___**Non Functional**___

Short Answer

1. What are the three fundamental analysis strategies? Compare and contrast the outcomes of each strategy.

2. What are the methods used to identify improvement opportunities during business process improvement? How do the methods used for each analysis strategy affect the outcome of the "identify improvement" process?

3. What are the methods used to identify improvement opportunities during business process reengineering? How do the methods used for each analysis strategy affect the outcome of the "identify improvement" process?

4. What are the three types of interview questions? Define and identify why an analyst would use each type of question. Include an example of each question type.

5. Describe the appearance of a Joint Application Design (JAD) meeting room. Why is the room designed in this manner?

6. Document analysis and observation are two requirement gathering techniques. Briefly describe each and compare and contrast the advantages and disadvantages.

7. What two techniques are best suited for gathering information during all three stages of the information-gathering process (As-Is, improvements, and To-Be)? Discuss the user involvement and cost, as well as the depth, breadth, and integration of information for each.

8. Describe the most common way that the analyst organizes the interview process in terms of structured versus unstructured, and also in terms of open-ended, closed-ended, and probing questions.

9. During an interview, the analyst has been asking about the process used to identify and correct the number of poor-quality products produced on a manufacturing line.

> The analyst commented, "This process seems way too slow and complicated. I don't know how you people can function if this is the way things are done." Is this an appropriate comment for the interviewer to make? Why or why not?

10. Explain why JAD is not just a fancy name for a group interview.

11. What is the primary goal of observation? What are three ways to make observation more effective? How reliable are the results of observation?

12. What is the difference between e-JAD and traditional JAD sessions? What makes e-JAD sessions more effective than the traditional ones?

13. Briefly describe the primary advantage that concept maps have over traditional textual requirements documents techniques?

14. Briefly describe the information is typically included in a system proposal?

15. Briefly describe the Story Cards and Task Lists requirements documentation techniques. What are some of the advantages of using story cards and task lists as a requirements gathering and documentation technique?

16. Briefly explain the non-functional requirements and functional requirements in software quality.

17. Briefly explain the external and internal quality dimensions in ISO9000.

Chapter 4: Business Process and Functional Modeling

Multiple Choices

1. A(n) _____ is a formal way of representing how a business system interacts with its environment.

a. use case
b. physical model
c. relationship
d. system boundary
e. trigger

2. A scenario is the same as a(n) _____.

a. use case
b. relationship
c. path through a use case
d. collection of use cases
e. role

3. Each use case describes _____ function(s) in which users interact with the system.

a. one
b. one or more
c. many
d. zero, one, or more
e. all

4. Jim has documented a use case that describes the functionality of a system as "To compute gross pay, multiply the hours worked that are recorded on the time card from the time clock by the hourly rate that is recorded in the employee master file from the MS SQL server database." This is an example of a(n) _____ use case.

a. overview
b. detail
c. essential
d. real
e. imaginary

5. A(n) _____ use case is typically created early in the process of understanding the system requirements as a way of documenting basic information about the use case.

a. overview
b. detail
c. essential
d. real
e. imaginary

6. The importance level of a use case increases for all of the following characteristics of the use case EXCEPT _____.

a. the use case represents an important business process
b. the use case supports revenue generation
c. the technology is proven
d. the functionality is complex
e. the functionality is time-critical

7. The _____ relationship in use cases allows use cases to support the concept of inheritance.

a. association
b. extend
c. include
d. generalization
e. none of these

8. The event that causes a use case to begin is called a(n) _____.

a. action
b. trigger
c. hammer
d. anvil
e. stakeholder

9. Which of the following relationships describe the communication between the use case and the actors?

a. association relationship
b. extend relationship
c. include relationship
d. generalization relationship
e. none of these

10. Which of the following relationships represent the extension of the functionality of the use case to cover optional behavior?

a. association relationship
b. extend relationship
c. include relationship
d. generalization relationship
e. optional relationship

11. Which of the relationship types in use cases enables functional decomposition?

a. association relationship
b. extend relationship
c. include relationship
d. generalization relationship
e. decompose relationship

12. Individual steps in a use case should be written in the form _____.
a. Direct Object, Verb, Subject, Preposition, Indirect Object
b. Direct Object, Subject, Verb, Preposition, Indirect Object
c. Subject, Verb, Preposition, Indirect Object, Direct Object
d. Subject, Verb, Indirect Object, Preposition, Direct Object
e. Subject, Verb, Direct Object, Preposition, Indirect Object

13. If a use case becomes too complex, it should be _____.
a. rewritten to simplify it
b. decomposed into a set of use cases
c. written with a series of repeating steps to simplify it
d. written from the perspective of an independent observe to simplify it
e. dropped from the system, as it will be too complex to implement in the final system

14. The correct sequence of the major steps in creating use case diagrams is _____.
a. identify the major use cases, expand the major use cases, confirm the major use cases, create the use-case diagram
b. identify the major use cases, expand the major use cases, create the use-case diagram, confirm the major use cases
c. create the use-case diagram, identify the major use cases, expand the major use cases, confirm the major use cases
d. create the use-case diagram, identify the major use cases, confirm the major use cases, expand the major use cases
e. identify the major use cases, confirm the major use cases, expand the major use cases, create the use-case diagram

15. When drawing the use-case diagram, an analyst should do the steps in this order: _____.
a. draw the use cases on the diagram, identify the system boundary, place the actors on the diagram, and draw the lines connecting the actors to the use cases
b. identify the system boundary, draw the use cases on the diagram, place the actors on the diagram, and draw the lines connecting the actors to the use cases
c. place the actors on the diagram, draw the use cases on the diagram, identify the system boundary, and draw the lines connecting the actors to the use cases
d. identify the system boundary, place the actors on the diagram, draw the use cases on the diagram, and draw the lines connecting the actors to the use cases
e. none of these gives the correct order of steps

16. A(n) _____ actor is a separate system that interacts with the current system using standard communication protocols, such as TCP/IP, FTP, or HTTP, or an external database that can be accessed using standard SQL.

a. incremental
b. simple
c. open
d. average
e. complex

17. A complex use case is one that has more than _____ unique transactions.

a. 5
b. 7
c. 9
d. 10
e. 12

18. Object nodes model these objects in an activity diagram. Object nodes are portrayed in an activity diagram as _____.

a. arcs
b. ovals
c. diamonds
d. rectangles
e. rounded rectangles

19. A Fork Node in an activity diagram is used to _____ behavior into a set of parallel or concurrent flows of activities (or actions).

a. combine
b. create
c. initialize
d. split
e. represent

20. The purpose of a walkthrough is to thoroughly test the fidelity of the functional models to the _____ and to ensure that the models are consistent.

a. non-functional models
b. use-case diagrams
c. activity diagrams
d. functional requirements
e. use-case descriptions

21. Activity diagrams, use-case descriptions, and use-case diagrams are three different representations for the _____ .

a. functional and non-functional model
b. functional model
c. non-functional model
d. design model
e. architectural model

True/False

1. Use cases can be used to document both the current (As-Is) system and the future (To-Be) system. TRUE

2. Use cases are the primary drivers for all of the UML diagramming techniques. TRUE

3. An essential use case describes the specific set of steps to be followed. FALSE

4. A use case that describes functionality that is complex and risky would be given a high importance level. TRUE

5. The primary actor is the person or thing that starts the execution of a use case. TRUE

6. The include relationship represents the optional inclusion of another use case. FALSE

7. Inheritance is supported in use cases through the generalization relationship. TRUE

8. An alternate or exceptional flow in a use case documents the decomposition of the normal flow of events. FALSE

9. The SVDPI form of sentences in use cases aids in the identification of classes. TRUE

10. A very complex use case should be broken down into a set of use cases. TRUE

11. An actor is represented in a use case diagram by a stick figure of a man. TRUE

12. An include relationship is modeled in a use case diagram by an arrow with the word <<include>> above it. TRUE

13. An actor in a use case must be a person. FALSE

14. An actor in a use case always represents a specific user. FALSE

15. As you work through the SDLC, it is likely that the system boundaries will change. TRUE

16. It is a good idea to have the users role play the use cases as a way of confirming them during the analysis phase. TRUE

17. A formal way of representing how a business system interacts with its environment is termed a use case. TRUE

18. Rectangles are used to represent association relationships in use case diagrams. FALSE

19. Each use case can be associated with one or more role(s) that users have in the system. FALSE

20. A use case that represents an important business process and involves the use of new technology would likely be given an importance level of medium. FALSE

21. A use case that begins at the end of the month has a temporal trigger. TRUE

22. The use case Take Order has a temporal trigger if it begins when a customer calls to place an order. FALSE

23. As Felix is documenting an order entry system, he discovers that someone can call up to place an order that is not a customer. In this case, the Take Order use case will use the Create Customer use case to capture the customer information, and then the order will be taken. This is an example of the extend relationship between use cases. TRUE

24. A use case should be written from the perspective of at least one of the actors associated with the use case. FALSE

25. A solid line without arrows between an actor and a use case in a use case diagram represents a one-way flow of communication from the actor to the use case. FALSE

26. Use cases are typically written to document the normal flow of events. Exceptions that occur in the normal flow need not be documented as part of the use case description. FALSE

27. An asterisk on a relationship in a use case diagram represents multiplicity of the association. TRUE

28. When drawing use case diagrams, higher level use cases are drawn below lower level use cases. FALSE

29. The first step in creating use case diagrams is to identify the primary actors and their goals. FALSE

30. Object nodes in an activity diagram are depicted using rectangles. TRUE

31. Control flows in an activity diagram show the flow of objects into and out of activities. FALSE

32. Control flows in an activity diagram are shown using solid-lines with arrows while object flows are shown using dashed lines with arrows. TRUE

33. A decision node in an activity diagram is used to represent the actual test condition that is used to determine which of the paths exiting the node is to be traversed. TRUE

34. Paths coming out of a decision node are always mutually-exclusive, while the paths coming out of a fork node are sometimes concurrent and sometimes mutually-exclusive. FALSE

35. Join nodes in an activity diagram are used to bring concurrent or parallel flows together back into a single flow. TRUE

36. A guard condition represents the value of the decision-test, based on which a particular path from the decision node will be traversed. TRUE

37. Setting the scope of the activity being modeled is a task that can be accomplished after completing the activity diagram. FALSE

38. Activity diagram is a representation for the non-functional model. FALSE

39. Activity diagram, use-case diagram and use-case descriptions are three different representations for the non-functional model. FALSE

40. Verification and validation through a walkthrough is to uncover and correct errors or faults in the evolving specification. FALSE

41. The presenter role in a walkthrough team is more important than the role maintenance oracle. FALSE

42. For a walkthrough to be successful, the members of the walkthrough team MUST be fully prepared.

43. When comparing a use-case description to a use-case diagram for functional model verification and validation, there must be ONE and ONLY ONE use-case description for each use case, and vice versa.. TRUE

44. A Join Node in an activity diagram is used to split behavior into a set of parallel or concurrent flows of activities (or actions). FALSE

45. All object-oriented systems development approaches are use-case driven, architecture-centric, and iterative and incremental.. TRUE

Fill In the Blank

1. A(n) ___**use case**__ is a formal way of representing how a business system interacts with its environment.

2. A scenario is the same as a(n) **_path through a use case**____.

3. Each use case describes **_one**____ function(s) in which users interact with the system.

4. A(n) **_overview**____ use case is typically created early in the process of understanding the system requirements as a way of documenting basic information about the use case.

5. The importance level of a use case increases for all of the following characteristics of the use case EXCEPT **_the technology is proven**____.

6. The **_generalization**__ relationship in use cases allows use cases to support the concept of inheritance.

7. The event that causes a use case to begin is called a(n) **_trigger**____.

8. ____**Association**_____ relationships describe the communication between the use case and the actors?

9. _____**Extend**_____ relationships represent the extension of the functionality of the use case to cover optional behavior?

10. _____**Include**_____ relationship types in use cases enables functional decomposition?

11. Individual steps in a use case should be written in the form **_Subject, Verb, Direct Object, Preposition, Indirect Object**____.

12. If a use case becomes too complex, it should be **_decomposed into a set of use cases**____.

13. A(n) __**average**_____ actor is a separate system that interacts with the current system using standard communication protocols, such as TCP/IP, FTP, or HTTP, or an external database that can be accessed using standard SQL.

14. A complex use case is one that has more than __**7**___ unique transactions.

15. Object nodes model these objects in an activity diagram. Object nodes are portrayed in an activity diagram as ___**rectangles**_____.

16. A Fork Node in an activity diagram is used to __**split**_____ behavior into a set of parallel or concurrent flows of activities (or actions).

17. The purpose of a walkthrough is to thoroughly test the fidelity of the functional models to the _**functional requirements**_____ and to ensure that the models are consistent.

18. Activity diagrams, use-case descriptions, and use-case diagrams are three different representations for the _**functional models**_____

19. **Use cases**____ can be used to document both the current (As-Is) system and the future (To-Be) system.

20. ___**Use cases**____ are the primary drivers for all of the UML diagramming techniques.

21. A use case that describes functionality that is complex and risky would be given a(n) _____**high**_____ importance level.

22. The primary actor is the person or thing that ___**starts the execution of**__ of a use case.

23. ___**Inheritance**_____ is supported in use cases through the generalization relationship.

24. A _____**very complex**_____ use case should be broken down into a set of use cases.

25. A(n) ____**actor**_____ is represented in a use case diagram by a stick figure of a man.

26. An include relationship is modeled in a use case diagram by an arrow with the word ____**<<include>>**_____ above it.

27. It is a good idea to have the users role play the use cases as a way of confirming them during the ___**analysis phase**_____

28. A formal way of representing how a business system interacts with its environment is termed a(n) _____**use case**_____

29. A use case that begins at the end of the month has a(n) ____**temporal**_____ trigger.

30. As Felix is documenting an order entry system, he discovers that someone can call up to place an order that is not a customer. In this case, the Take Order use case will use the Create Customer use case to capture the customer information, and then the order will be taken. This is an example of the __**extend**_____ relationship between use cases.

31. An asterisk on a relationship in a use case diagram represents **multiplicity** of the association.

32. _____**Object**_____ nodes in an activity diagram are depicted using rectangles.

33. ____**Control**_____ flows in an activity diagram are shown using solid-lines with arrows while object flows are shown using dashed lines with arrows.
34. A(n) ___**decision**_____ node in an activity diagram is used to represent the actual test condition that is used to determine which of the paths exiting the node is to be traversed.

35. Join nodes in an activity diagram are used to bring ____**concurrent/parallel**_____ flows together back into a single flow.

36. A(n) _____**guard**_____ condition represents the value of the decision-test, based on which a particular path from the decision node will be traversed.

37. Activity diagram, use-case diagram and use-case descriptions are three different representations for the __**functional**_____ model.

38. When comparing a use-case description to a use-case diagram for functional model verification and validation, there must be ___**ONE and ONLY ONE** __ use-case description for each use case, and vice versa..

39. All object-oriented systems development approaches are _**use-case drive**_____, architecture-centric, and iterative and incremental.

Short Answer

1. Write a complete use case description for the interaction that a student would have with your college or university's class registration system.

There is no single correct answer to this question, as it will depend on the particular details of your school's system. Also, it may vary based on the student's perspective on the system. For example, at most schools athletes go through a different registration process than the rest of the students.

This use case description, though, should document the following to be correct:

• Use case name
• Primary actor
• Use case type
• Stakeholders and interests
• Brief description
• Trigger
• Relationships
• Normal flow of events
• Alternate/exceptional flows (this should include closed classes or others where special permits may be needed, holds on registration because of uncleared financial situations, etc.)
Response: See pages 166-173

2. How does a project team go about obtaining the information they need to create use case descriptions?
The project team must work closely with the users as they develop the use cases. Often the project team will use interviews, JAD sessions, and observation to gain this information. In reality, the techniques are similar to those discussed in Chapter 4 of the text. The key will be keeping in mind that a use case is associated with a role that a person plays in the system, not with a specific person.
Response: See pages 167

3. What are the four types of use cases? When are each used?
Use cases will vary based on the purpose of the use case and the level of detail they contain. Thus, there will be overview versus detail use cases, and essential versus real ones.

Overview use cases allow the analyst and the user to agree on a high-level overview of the requirements. This use case will only document information such as the name, ID number, primary actor, type, and a brief description.

Detail use cases will document all of the information for the use case. These will be developed after all of the overview use cases have been agreed to by the users and the analysts.

An essential use case describes only the minimum information necessary to understand the required functionality of the system.

A real use case goes beyond the essential use case and describes the specific set of steps required to understand the functionality of the system. Essential use cases are implementation independent whereas real use cases are detailed descriptions of how to use the system once it is implemented.
Response: See pages 167-168

4. What are the five characteristics of a use case that impacts its importance level? Describe each, and indicate what conditions would result in a higher importance level.
The use case may represent an important business process, which results in a higher importance level.

The use case may support the generation of revenue or cost reduction. If so, this would result in a higher importance level.

If the technology needed to support the use case is new or risky, that will result in a higher importance level.

If the functionality in the use case is complex, risky, and/or time-critical, then the importance level will be higher.

If the use case could help increase the level of understanding of the evolving design of the system, and this increase in understanding comes with little relative effort, then the importance

level will be higher.
Response: See pages 168-169

5. Distinguish between the *extend* and *include* relationships in use case diagrams. When would you use each of these relationships?
An extend relationship documents the extension of the functionality of the use case to incorporate optional behavior. For example, if the use case Register for Classes describes the registration process at your university, the use case Clear Financial Hold would only be executed for students who have financial holds on their registration, and the relationship between these two use cases would be an extend relationship. An include relationship represents the mandatory inclusion of another use case, which would happen if you had decomposed a particularly complex use case into several simpler ones. The text points out that this type of relationship allows for functional decomposition.
Response: See page 170

6. Distinguish between the association and generalization relationships in use case diagrams. When would you use each of these relationships?
An association relationship documents the communication between the use case and the actors that use the use case. All actors involved in the use case will be documented with the association relationship. The generalization relationship allows use cases to support the concept of inheritance, since use cases can inherit the behaviors of other use cases. For example, Athlete Registration and New Student Registration can both have generalization relationships with Register for Classes, which would be used by the typical student.
Response: See page 170

7. Explain the difference between normal flows and sub-flows that would be documented in a use case.
The normal flow of events describes the steps that are normally executed in a use case. The steps in a normal flow are listed in the order in which they are performed. In some cases it is recommended that the steps in a normal flow be decomposed to simplify the normal flow. Thus, subflows are used to help keep the normal flow of events as simple as possible. Subflows represent the decomposition of normal flow steps. At times, subflows could be replaced with a separate use case, if it makes sense.
Response: See pages 170-171

8. Explain the usefulness of alternate flows and when they are used.
Alternate or exceptional flows are those that can happen, but they are not the normal flow. They are documented separately to keep the normal flow of events as simple as possible. For example, in a student registration system, you may have alternate flows for students with financial or academic holds on registration, or those who have to deal with a closed class situation before they can complete their registration.
Response: See page 171

9. What is the SVDPI form for steps in a use case, and why is it important to use this format when writing use cases? Provide an example of a sentence written in this format.
SVDPI represents Subject-Verb-Direct Object and optionally Preposition-Indirect Object. This form of the sentence is useful for identifying classes and operations from the use case description. An example may be something like "The Student contacts the academic department to obtain a closed-class waiver."
Response: See page 172

10. Draw a sketch of the diagramming symbol for each of the following components of a use-case diagram.

- Actor
- Use case
- Subject boundary
- Association relationship
- Include relationship
- Extend relationship
- Generalization relationship

11. List and briefly describe the four major steps in writing effective use-case descriptions and use-case diagrams.
Identify the major use cases

In this step you find the boundary of the system, identify the primary actors, list the goals for those actors, identify and write the overviews for the major use cases, and review any current use cases.

Expand the major use cases

In this step choose one of the use cases to expand, fill in the details, write the normal flow for the events in that use case, decompose the flow into subflows if needed, list the possible alternate or exceptional flows, and describe how the actor or system should react when an alternate or exceptional flow occurs.

Confirm the major use cases

Review the set of use cases, and revise as needed, and then start at the top again.

Create the use-case diagram

Draw the system boundary, place the use cases on the diagram, place the actors on the diagram, and then draw the associations. Revise as needed.
Response: See page 178

12. What is an actor? What is their role in a system?
An actor is a role played by an individual while they are interacting with the system, or it may be another system that interacts with the current system. An actor is not a specific person. Actors can provide input to the system, receive output from the system, or both. A primary actor is an actor who triggers the use case.
Response: See page 173

13. Distinguish between logical models and physical models.
Logical models are models that describe the business domain's activities witho
ut suggesting how they are conducted. Logical models are also referred to as problem domain models. Examples of logical models include activity diagrams and use case diagrams. Logical models are constructed in the analysis phase while physical models are constructed in the design phase. In the design phase, logical models are refined into physical models, which provide information that is ultimately used to build the system. Logical models allow the analyst to focus on the business operations without getting distracted by the implementation details.
Response: See pages 158-159

14. Describe the terms action, activity and object nodes that are found in an activity diagram.
Action is a simple non-decomposable piece of the overall behavior that is being modeled. On the other hand, an activity is used to represent a set of actions. An activity can further be decomposed into other activities or actions. Actions and activities can represent both computerized or manual behavior. They are depicted using rounded rectangles. Object nodes model objects in the activity diagram. They are represented using rectangles. Object nodes represent the flow of information from one activity to another activity.
Response: See pages 160-162

15. Distinguish between control flows and object flows in an activity diagram.
Control flows model the paths of execution through a business process. Control flows can only be attached to actions or activities, and are depicted using a solid line with an arrowhead depicting the direction of flow. Object flows model the flow of objects through the business process. Since activities or actions modify or transform objects, object flows are necessary to show the actual objects that are used by and modified by these actions and activities. Object flows are depicted using dashed lines with arrows, and must have an activity at one end and an object at the other end.
Response: See page 162

16. What is a walkthrough?
A walkthrough is essentially a peer review of a product. In the case of the functional models, a walkthrough is a review of the different models and diagrams created during functional modeling. This review typically is completed by a team of individuals that comes from the development team and the client. The purpose of a walkthrough is to thoroughly test the fidelity of the functional models to the functional requirements and to ensure that the models are consistent. That is, a walkthrough uncovers errors or faults in the evolving specification.

However, a walkthrough does not correct errors—it simply identifies them. Error correction is to be accomplished by the team after the walkthrough is completed.

17. What are the different roles played during a walk-through?

There are specified roles that different members of the walkthrough team can play. The first is the presenter role. This should be played by the individual who is primarily responsible for the specific representation being reviewed. This individual presents the representation to the walkthrough team. The second role is recorder, or scribe. The recorder should be a member of the analysis team. This individual carefully takes the minutes of the meeting by recording all significant events that occur during the walkthrough. In particular, all errors that are uncovered must be documented so that the analysis team can address them. The third role is to have someone who raises issues regarding maintenance of the representation. Due to the emphasis on reusability in object-oriented development, this role becomes particularly crucial.
Finally, someone must be responsible for calling, setting up, and running the walkthrough meetings.

18. Briefly describe the set of rules that are used to ensure the three representations (activity diagrams, use-case descriptions, and use-case diagrams) for the functional models are consistent among themselves.

There are three different representations for the functional model: activity diagrams, use-case descriptions, and use-case diagrams. A set of rules have been developed to ensure that these three representations are consistent among themselves.
First, when comparing an activity diagram to a use-case description, there should be at least one event recorded in the normal flow of events, subflows, or alternate/exceptional flows of the use-case description for each activity or action that is included on an activity diagram, and each event should be associated with an activity or action.

Second, all objects portrayed as an object node in an activity diagram must be mentioned in an event in the normal flow of events, subflows, or alternate/exceptional flows of the use-case description.

Third, sequential order of the events in a use-case description should occur in the same sequential order of the activities contained in an activity diagram.

Fourth, when comparing a use-case description to a use-case diagram, there must be one and only one use-case description for each use case, and vice versa.

Fifth, all actors listed in a use case description must be portrayed on the use-case diagram. Furthermore, each one must have an association link that connects it to the use case and must be listed with the association relationships in the use-case description. In some organizations, we should also include the stakeholders listed in the use-case description as actors in the use-case diagram.

Sixth, all other relationships listed in a use-case description (include, extend, and generalization) must be portrayed on a use-case diagram.

Finally, there are many diagram-specific requirements that must be enforced. For example, in an activity diagram a decision node can be connected to activity or action nodes only with a control flow, and for every decision node there should be a matching merge node. Every type of node and flow has different restrictions.

19. Briefly describe the purposes of use case modeling in software development.

All object-oriented systems development approaches are use-case driven, architecture-centric, and iterative and incremental. A use case is a formal way of representing the way a business system interacts with its environment. Essentially, a use case is a high-level overview of the business processes in a business information system. From a practical perspective, use cases represent the entire basis for an object-oriented system. Use cases can document the current system (i.e., as-is system) or the new system being developed (i.e., to-be system). Given that object-oriented systems are use-case driven, use cases also form the foundation for testing and user-interface design. From an architecture-centric perspective, use case modeling supports the creation of an external or functional view of a business process in that it shows how the users view the process rather than the internal mechanisms by which the process and supporting systems operate.