CS504 Midterm MCQs from 1-22 Lectures

Lecture-01

The correct answer for each question is indicated by a ✓.

1 INCORRECT

Which question no longer concerns the modern software engineer?

- ✓ **A)** Why does computer hardware cost so much?
- **B)** Why does software take a long time to finish?
- **C)** Why does it cost so much to develop a piece of software?
- **D)** Why can't software errors be removed from products prior to delivery?

2 CORRECT

Today the increased power of the personal computer has brought about an abandonment of the practice of team development of software.

- **A)** True
- ✓ **B)** False

3 CORRECT

Software is a product and can be manufactured using the same technologies used for other engineering artifacts.

- **A)** True
- ✓ **B)** False

4 INCORRECT

Software deteriorates rather than wears out because

- **A)** Software suffers from exposure to hostile environments
- **B)** Defects are more likely to arise after software has been used often
- ✓ **C)** Multiple change requests introduce errors in component interactions
- **D)** Software spare parts become harder to order

5 INCORRECT

Most software continues to be custom built because

- **A)** Component reuse is common in the software world.
- **B)** Reusable components are too expensive to use.
- Software is easier to build without using someone else's components.

C)
✓ Off-the-shelf software components are unavailable in many application domains.
D)

6 INCORRECT

The nature of software applications can be characterized by their information

complexity
A)

content
B)

determinacy
C)

✓ both b and c
D)

7 INCORRECT

Modern software applications are so complex that it is hard to develop mutually exclusive category names.

✓ True
A)

False
B)

8 CORRECT

The so called "new economy" that gripped commerce and finance during the 1990s died and no longer influences decisions made by businesses and software engineers.

True
A)

✓ False
B)

9 CORRECT

The functionality of most computer systems does not need to be enhanced the lifetime of the system.

True
A)

✓ False
B)

10 CORRECT

Change cannot be easily accommodated in most software systems, unless the system was designed with change in mind.

✓ True
A)

False
B)

11 INCORRECT

Most software development projects are initiated to try to meet some business need.

✓ True
A)

False

B)

12 CORRECT

In general software only succeeds if its behavior is consistent with the objectives of its designers.

A) True

✓ B) False

Lecture-02

The correct answer for each question is indicated by a ✓.

1 INCORRECT

Which of the items listed below is not one of the software engineering layers?

A) Process

✓ B) Manufacturing

C) Methods

D) Tools

Feedback:

2 INCORRECT

Software engineering umbrella activities are only applied during the initial phases of software development projects.

A) True

✓ B) False

Feedback:

3 CORRECT

Which of these are the 5 generic software engineering framework activities?

✓ A) communication, planning, modeling, construction, deployment

B) communication, risk management, measurement, production, reviewing

C) analysis, designing, programming, debugging, maintenance

D) analysis, planning, designing, programming, testing

Feedback:

4

Process models are described as agile because they

INCORRECT

A) eliminate the need for cumbersome documentation

✓ B) emphasize maneuverability and adaptability

C) do not waste development time on planning activities

D) make extensive use of prototype creation

Feedback:

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5 INCORRECT

Which of these terms are level names in the Capability Maturity Model?

A) Performed

B) Repeated

C) Reused

D) Optimized

✓ E) both a and d

Feedback:

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6 CORRECT

Software processes can be constructed out of pre-existing software patterns to best meet the needs of a software project.

✓ A) True

B) False

Feedback:

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7 INCORRECT

Which of these are standards for assessing software processes?

A) SEI

B) SPICE

C) ISO 19002

D) ISO 9001

✓ E) both b and d

Feedback:

8 CORRECT

The best software process model is one that has been created by the people who will actually be doing the work.

✓ A) True

B) False

Feedback:

9 INCORRECT

Which of these is not a characteristic of Personal Software Process?

A) Emphasizes personal measurement of work product

✓ B) Practitioner requires careful supervision by the project manager

C) Individual practitioner is responsible for estimating and scheduling

D) Practitioner is empowered to control quality of software work products

Feedback:

10 INCORRECT

Which of these are objectives of Team Software Process?

A) Accelerate software process improvement

B) Allow better time management by highly trained professionals

C) Build self-directed software teams

D) Show managers how to reduce costs and sustain quality

✓ E) both b and c

Feedback:

11 INCORRECT

Process technology tools allow software organizations to compress schedules by skipping unimportant activities.

A) True

✓ B) False

Feedback:

12 CORRECT

It is generally accepted that one cannot have weak software processes and create high quality end products.

✓ True

A)
False
B)

Lecture-03

The correct answer for each question is indicated by a ✓.

1 INCORRECT

The linear sequential model of software development is

✓ **A)** A reasonable approach when requirements are well defined.

B) A good approach when a working program is required quickly.

C) The best approach to use for projects with large development teams.

D) An old fashioned model that cannot be used in a modern context.

Feedback:

2 INCORRECT

The linear sequential model of software development is also known as the

A) Classical life cycle model

B) Fountain model

C) Spiral model

D) Waterfall model

✓ **E)** both a and d

Feedback:

3 CORRECT

The incremental model of software development is

A) A reasonable approach when requirements are well defined.

✓ **B)** A good approach when a working core product is required quickly.

C) The best approach to use for projects with large development teams.

D) A revolutionary model that is not used for commercial products.

Feedback:

4

INCORRECT

The rapid application development model is

A) Another name for component-based development.

B) A useful approach when a customer cannot define requirements clearly.

✓ C) A high speed adaptation of the linear sequential model.

D) All of the above.

Feedback:

5
INCORRECT

Evolutionary software process models

A) Are iterative in nature

B) Can easily accommodate product requirements changes

C) Do not generally produce throwaway systems

✓ D) All of the above

Feedback:

6
INCORRECT

The prototyping model of software development is

A) A reasonable approach when requirements are well defined.

✓ B) A useful approach when a customer cannot define requirements clearly.

C) The best approach to use for projects with large development teams.

D) A risky model that rarely produces a meaningful product.

Feedback:

7
INCORRECT

The spiral model of software development

A) Ends with the delivery of the software product

B) Is more chaotic than the incremental model

✓ C) Includes project risks evaluation during each iteration

D) All of the above

Feedback:

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8 **INCORRECT**

The concurrent development model is

A) Another name for the rapid application development model.

B) ✓ Often used for the development of client/server applications.

C) Only used for development of parallel or distributed systems.

D) Used whenever a large number of change requests are anticipated.

Feedback:

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9 **INCORRECT**

The component-based development model is

A) Only appropriate for computer hardware design.

B) Not able to support the development of reusable components.

C) ✓ Works best when object technologies are available for support.

D) Not cost effective by known quantifiable software metrics.

Feedback:

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10 **INCORRECT**

The formal methods model of software development makes use of mathematical methods to

A) Define the specification for computer-based systems

B) Develop defect free computer-based systems

C) Verify the correctness of computer-based systems

D) ✓ All of the above

Feedback:

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11 **INCORRECT**

Which of these is not one of the phase names defined by the Unified Process model for software development?

A) Inception phase

B) Elaboration phase

C) Construction phase

D) ✓ Validation phase

Feedback:

12 CORRECT

In the Unified Process model requirements are determined iteratively and may span more than one phase of the process.

✓ **A)** True

B) False

Lecture-04

The correct answer for each question is indicated by a ✓.

1 CORRECT

Agility is nothing more than the ability of a project team to respond rapidly to change.

A) True

✓ **B)** False

2 INCORRECT

Which of the following is not necessary to apply agility to a software process?

✓ **A)** Eliminate the use of project planning and testing

B) Only essential work products are produced

C) Process allows team to streamline tasks

D) Uses incremental product delivery strategy

3 INCORRECT

How do you create agile processes to manage unpredictability?

A) Requirements gathering must be conducted very carefully

B) Risk analysis must be conducted before planning takes place

C) Software increments must be delivered in short time periods

D) Software processes must adapt to changes incrementally

✓ **E)** both c and d

4 CORRECT

In agile software processes the highest priority is to satisfy the customer through early and continuous delivery of valuable software.

✓ True

A)
False
B)

5 INCORRECT

It is not possible to build software that meets the customers' needs today and exhibits the quality characteristics that will enable it to be extended tomorrow.

True
A)
✓ False
B)

6 INCORRECT

Which of the following traits need to exist among the members of an agile software team?

Competence
A)
Decision-making ability
B)
Mutual trust and respect
C)
✓ All of the above
D)

7 CORRECT

All agile process models conform to a greater or lesser degree to the principles stated in the "Manifesto for Agile Software Development".

✓ True
A)
False
B)

8 INCORRECT

What are the four framework activities found in the Extreme Programming (XP) process model?

analysis, design, coding, testing
A)
planning, analysis, design, coding
B)
planning, analysis, coding, testing
C)
✓ planning, design, coding, testing
D)

9 INCORRECT

What are the three framework activities for the Adaptive Software Development (ASD) process model?

analysis, design, coding
A)
feasibility study, functional model iteration, implementation
B)
requirements gathering, adaptive cycle planning, iterative development
C)

✓ D) speculation, collaboration, learning

10 INCORRECT

The Dynamic Systems Development Method (DSDM) suggests a philosophy that is based on the Pareto principle (80% of the application can be delivered in 20% of the time required to build the complete application).

✓ A) True

B) False

11 INCORRECT

Which is not one of the key questions that is answered by each team member at each daily Scrum meeting?

A) What did you do since the last meeting?

B) What obstacles are you encountering?

✓ C) What is the cause of the problems you are encountering?

D) What do you plan to accomplish at the next team meeting?

12 INCORRECT

In Feature Driven Development (FDD) a "feature" is a client-valued function that can be delivered in two months or less.

A) True

✓ B) False

13 INCORRECT

Agile Modeling (AM) provides guidance to practitioner during which of these software tasks?

A) Analysis

B) Design

C) Coding

D) Testing

✓ E) both a and b

Lecture-05

The correct answer for each question is indicated by a ✓.

1 CORRECT

The essence of software engineering practice might be described as understand

the problem, plan a solution, carry out the plan, and examine the result for accuracy.

✓ A) True

B) False

2 INCORRECT

Which of the following is not one of Hooker's core principles of software engineering practice?

A) All design should be as simple as possible, but no simpler

B) A software system exists only to provide value to its users.

✓ C) Pareto principle (20% of any product requires 80% of the effort)

D) Remember that you produce others will consume

3 INCORRECT

Every communication activity should have a facilitator to make sure that the customer is not allowed to dominate the proceedings.

A) True

✓ B) False

4 CORRECT

The agile view of iterative customer communication and collaboration is applicable to all software engineering practice.

✓ A) True

B) False

5 INCORRECT

Software engineers collaborate with customers to define which of the following?

A) Customer visible usage scenarios

B) Important software features

C) System inputs and outputs

✓ D) All of the above

6 INCORRECT

Everyone on the software team should be involved in the planning activity so that we can

A) reduce the granularity of the plan

B) analyze requirements in depth

✓ C) get all team members to "sign up" to the plan

D) begin design

7 INCORRECT

What role(s) do user stories play in agile planning?

A) Define useful software features and functions delivered to end-users

B) Determine a schedule used to deliver each software increment

C) Provide a substitute to performing detailed scheduling of activities

✓ D) Used to estimate the effort required build the current increment

E) both a and d

8 INCORRECT

Which of the following activities is not one of the four things that need to be accomplished by the generic planning task set?

A) Develop overall project strategy

B) Identify the functionality to deliver in each software increment

✓ C) Create a detailed schedule for the complete software project

D) Devise a means of tracking progress on a regular basis

9 INCORRECT

Analysis models depict software in which three representations?

A) architecture, interface, component

B) cost, risk, schedule

✓ C) information, function, behavior

D) None of the above

10 CORRECT

The customer can directly observe both the difference between the internal quality of a design and its external quality?

A) True

✓ B) False

11 INCORRECT

Teams using agile software practices never create models.

A) True

✓ B) False

12 CORRECT

Many of the tasks from the generic task sets for analysis modeling and design can be conducted in parallel with one another.

✓ A) True

B) False

13 INCORRECT

Which of the following is not one of the principles of good coding?

A) Create unit tests before you begin coding

B) Create a visual layout that aids understanding

✓ C) Keep variable names short so that code is compact

D) Write self-documenting code, not program documentation

14 INCORRECT

A successful test is one that discovers at least one as-yet undiscovered error.

✓ A) True

B) False

15 INCORRECT

Which of the following are tasks in the generic task set for construction?

A) Build a software component

B) Create a user interface

C) Unit test the component

D) Assess the quality of the component

✓ E) both a and c

16 CORRECT

Which of the following are valid reasons for collecting customer feedback concerning delivered software?

A) Allows developers to make changes to the delivered increment

B) Delivery schedule can be revised to reflect changes

C) Developers can identify changes to incorporate into next increment

✓ D) All of the above

Lecture-06

The correct answer for each question is indicated by a ✓.

1 CORRECT

Software engineers do not need to consider hardware when designing a computer-based system.

A) True

✓ B) False

2 INCORRECT

Which of the following can be elements of computer-based systems?

A) documentation

B) software

C) people

D) hardware

✓ E) all of the above

3 INCORRECT

The system engineering process usually begins with the

A) detailed view

B) domain view

C) element view

✓ D) world view

4 INCORRECT

To construct a system model the engineer should consider which of the following restraining factors?

A) assumptions

B) budget

constraints

C)
schedule
D)
both a and c
E)

5 CORRECT

By following modern system engineering practices simulation of reactive systems is no longer necessary.

True
A)
False
B)

6 INCORRECT

During business process engineering, three different architectures are examined.

applications, data, technology infrastructure
A)
communications, organization, financial infrastructure
B)
network, database, reporting structure
C)
systems, requirements, data structure
D)

7 INCORRECT

Which elements of business processing engineering are the responsibilities of the software engineer?

business area analysis
A)
business system design
B)
construction and integration
C)
information strategy planning
D)
both b and c
E)

8 INCORRECT

The goal of product engineering is to translate the customer's desire for a set of defined capabilities into a working product.

True
A)
False
B)

9 INCORRECT

The architecture components for product engineering are

data, hardware, software, people
A)
data, documentation, hardware, software

B)
data, hardware, software, procedures

C)
documentation, hardware, people, procedures

D)

10 INCORRECT

The top level of the hierarchical model of a system is known as the

A) AFD

B) DFD

✓ C) SCD

D) SFD

11 INCORRECT

The system model template contains which of the following elements

A) input

B) output

C) user interface

✓ D) all of the above

12 INCORRECT

UML notations that can be used to model the hardware and software elements of a system are

A) Activity diagrams

B) Class diagrams

C) Deployment diagrams

D) Use-case diagrams

✓ E) a, b, and c

Lecture-07

The correct answer for each question is indicated by a ✓.

1 INCORRECT

Requirements engineering is a generic process that does not vary from one software project to another.

✓ A) True

B) False

2 INCORRECT

During project inception the intent of the of the tasks are to determine

A) basic problem understanding

B) nature of the solution needed

C) people who want a solution

D) none of the bbove

✓ E) a, b and c

3 INCORRECT

Three things that make requirements elicitation difficult are problems of

A) budgeting

B) scope

C) understanding

D) volatility

✓ E) b, c and d

4 INCORRECT

The result of the requirements engineering elaboration task is an analysis model that defines which of the following problem domain(s)?

A) information

B) functional

C) behavioral

✓ D) all of the above

5 CORRECT

It is relatively common for different customers to propose conflicting requirements, each arguing that his or her version is the right one.

✓ A) True

B) False

6 CORRECT

The system specification describes the

✓ A) Function, performance and constraints of a computer-based system

B) implementation of each allocated system

C) element software architecture

D) time required for system simulation

7 INCORRECT

The best way to conduct a requirements validation review is to

A) examine the system model for errors

B) have the customer look over the requirements

C) send them to the design team and see if they have any concerns

✓ D) use a checklist of questions to examine each requirement

8 INCORRECT

The use of traceability tables helps to

A) debug programs following the detection of run-time errors

B) determine the performance of algorithm implementations

✓ C) identify, control, and track requirements changes

D) none of the above

9 INCORRECT

A stakeholder is anyone who will purchase the completed software system under development.

A) True

✓ B) False

10 UNANSWERED

The job of the requirements engineer is to categorize all stakeholder information in a way that allows decision makers to choose an internally consistent set of requirements.

A) True

B) False

11 CORRECT

The nature of collaboration is such that all system requirements are defined by consensus of a committee of customers and developers.

True

A)

✓ False

B)

12 INCORRECT

Which of the following is not one of the context-free questions that would be used during project inception?

What will be the economic benefit from a good solution?

A)

✓ Who is against this project?

B)

Who will pay for the work?

C)

Who will use the solution?

D)

13 CORRECT

In collaborative requirements gathering, the facilitator

cannot be a member of the software team

A)

cannot be a customer

B)

✓ controls and facilitates the process

C)

must be an outsider

D)

14 INCORRECT

Which of the following is not one of the requirement classifications used in Quality Function Deployment (QFD)?

exciting

A)

expected

B)

✓ mandatory

C)

normal

D)

15 INCORRECT

Developers and customers create use-cases to help the software team understand how different classes of end-users will use functions.

✓ True

A)

False

B)

16 CORRECT

The work products produced during requirement elicitation will vary depending on the

size of the budget

A)

✓ size of the product being built

B)
software process being used
C)
stakeholders needs
D)

17 INCORRECT

Use-case actors are always people, never system devices.

True
A)
False
B)

18 INCORRECT

Which of following is not a UML diagram used creating a system analysis model?

activity diagram
A)
class diagram
B)
dataflow diagram
C)
state diagram
D)

19 INCORRECT

Analysis patterns facilitate the transformation of the analysis model into a design model by suggesting reliable solutions to common problems.

True
A)
False
B)

20 CORRECT

In win-win negotiation, the customer's needs are met even though the developer's need may not be.

True
A)
False
B)

21 INCORRECT

In requirements validation the requirements model is reviewed to ensure its technical feasibility.

True
A)
False
B)

Lecture-08

The correct answer for each question is indicated by a ✓.

1 INCORRECT

Which of the following is not an objective for building an analysis model?

A) define set of software requirements that can be validated

B) describe customer requirements

✓ **C)** develop an abbreviated solution for the problem

D) establish basis for software design

2 CORRECT

Object-oriented domain analysis is concerned with the identification and specification of reusable classes within an application domain.

✓ **A)** True

B) False

3 INCORRECT

The data dictionary contains descriptions of each software

A) control item

B) data object

C) diagram

D) notation

✓ **E)** both a and b

4 INCORRECT

Which of these is not an element of an object-oriented analysis model?

A) Behavioral elements

B) Class-based elements

✓ **C)** Data elements

D) Scenario-based elements

5 INCORRECT

In analysis models the only data objects that need representation are those that will be implemented using software classes.

A) True

✓ B) False

6 CORRECT

The values that are assigned to an object's attributes make that object unique.

✓ A) True

B) False

7 INCORRECT

The relationships shown in a data model must be classified to show their

A) cardinality

B) directionality

C) modality

D) probability

✓ E) both a and c

8 CORRECT

The entity relationship diagram

✓ A) depicts relationships between data objects

B) depicts functions that transform the data flow

C) indicates how data are transformed by the system

D) indicates system reactions to external events

9 CORRECT

A generalized description of a collection of similar objects is a

✓ A) class

B) instance

C) subclass

D) super class

10 INCORRECT

Operations are object procedures that are invoked when an object receives a message.

✓ A) True

B) False

B)

11 INCORRECT

In many cases there is no need to create a graphical representation of a usage scenario.

A) True

B) False

12 INCORRECT

UML activity diagrams are useful in representing which analysis model elements?

A) Behavioral elements

B) Class-based elements

C) Flow-based elements

D) Scenario-based elements

13 INCORRECT

The data flow diagram

A) depicts relationships between data objects

B) depicts functions that transform the data flow

C) indicates how data are transformed by the system

D) indicates system reactions to external events

E) both b and c

14 INCORRECT

Control flow diagrams are

A) needed to model event driven systems.

B) required for all systems.

C) used in place of data flow diagrams.

D) useful for modeling real-time systems.

E) both a and d

15 CORRECT

The data flow diagram must be augmented by descriptive text in order to describe the functional requirements for a software product.

True

A)
False
B)

16 INCORRECT

Which of the following should be considered as candidate objects in a problem space?

A) events
B) people
C) structures
✓ D) all of the above

17 INCORRECT

Attributes cannot be defined for a class until design has been completed.

A) True
✓ B) False

18 INCORRECT

Which of the following is not one of the broad categories used to classify operations?

A) computation
B) data manipulation
C) event monitors
✓ D) transformers

19 INCORRECT

Which of the following items does not appear on a CRC card?

A) class collaborators
B) class name
✓ C) class reliability
D) class responsibilities

20 INCORRECT

Class responsibilities are defined by

A) its attributes only
its collaborators

B)

its operations only

C)

✓ both its attributes and operations

D)

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21 CORRECT

An analysis package involves the categorization of analysis model elements into useful groupings.

✓ True

A)

False

B)

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22 INCORRECT

Events occur whenever a(n)

✓ actor and the OO system exchange information

A)

class operation is invoked

B)

messages are passed between objects

C)

all of the above

D)

---

23 INCORRECT

The state diagram

depicts relationships between data objects

A)

depicts functions that transform the data flow

B)

indicates how data are transformed by the system

C)

✓ indicates system reactions to external events

D)

---

24 INCORRECT

For purposes of behavior modeling a state is any

consumer or producer of data.

A)

data object hierarchy.

B)

✓ observable mode of behavior.

C)

well defined process.

D)

Lecture-09

The correct answer for each question is indicated by a ✓.

1 **INCORRECT**

Which of the following are areas of concern in the design model?

- **A)** architecture
- **B)** data
- **C)** interfaces
- **D)** project scope
- ✓ **E)** a, b and c

2 **INCORRECT**

The importance of software design can be summarized in a single word

- **A)** accuracy
- **B)** complexity
- **C)** efficiency
- ✓ **D)** quality

3 **INCORRECT**

Which of these are characteristics of a good design?

- **A)** exhibits strong coupling between its modules
- **B)** implements all requirements in the analysis model
- **C)** includes test cases for all components
- **D)** provides a complete picture of the software
- ✓ **E)** both b and d

4 **INCORRECT**

Which of the following is not a characteristic common to all design methods?

- ✓ **A)** configuration management
- **B)** functional component
- **C)** notation quality assessment
- **D)** guidelines refinement heuristics

5 INCORRECT

Software design is an iterative generic process that may be applied without modification to any software project.

A) True

✓ **B)** False

6 INCORRECT

What types of abstraction are used in software design?

A) control

B) data

C) environmental

D) procedural

✓ **E)** a, b and d

7 INCORRECT

Which of the following models can be used to represent the architectural design of a piece of software.

A) Dynamic models

B) Functional models

C) Structural models

✓ **D)** All of the above

8 INCORRECT

Design patterns are not applicable to the design of object-oriented software?

A) True

✓ **B)** False

9 CORRECT

Since modularity is an important design goal it is not possible to have too many modules in a proposed design.

A) True

✓ **B)** False

10 INCORRECT

Information hiding makes program maintenance easier by hiding data and procedure from unaffected parts of the program.

✓ True

A)
False
B)

11 CORRECT

Cohesion is a qualitative indication of the degree to which a module

A) can be written more compactly.

✓ B) focuses on just one thing.

C) is able to complete its function in a timely manner.

D) is connected to other modules and the outside world.

12 INCORRECT

Coupling is a qualitative indication of the degree to which a module

A) can be written more compactly.

B) focuses on just one thing.

C) is able to complete its function in a timely manner.

✓ D) is connected to other modules and the outside world.

13 INCORRECT

When using structured design methodologies the process of stepwise refinement is unnecessary.

A) True

✓ B) False

14 CORRECT

Software designs are refactored to allow the creation of software that is easier to integrate, easier to test, and easier to maintain.

✓ A) True

B) False

15 INCORRECT

Inheritance provides a mechanism by which changes to lower level classes can be propagated to all super classes quickly.

A) True

✓ B) False

16 CORRECT

Polymorphism reduces the effort required to extend an object system by

coupling objects together more tightly.

A)
✓ enabling a number of different operations to share the same name.

B)
making objects more dependent on one another.

C)
removing the barriers imposed by encapsulation.

D)

17 CORRECT

Which of the following is not one of the five design class types

A)
Business domain classes

✓ B)
Entity classes

C)
Process classes

D)
User interface classes

18 CORRECT

Which design model elements are used to depict a model of information represented from the user's view?

A)
Architectural design elements

B)
Component-level design elements

✓ C)
Data design elements

D)
Interface design elements

19 INCORRECT

Which design is analogous to the floor plan of a house?

✓ A)
Architectural design

B)
Component-level design

C)
Data design

D)
Interface design

20 INCORRECT

Which design model is analogous to the detailed drawings of the access points and external utilities for a house?

A)
Architectural design

B)
Component-level design

C)
Data design

C)

✓ Interface design

D)

21 INCORRECT

Which design model is analogous to a set of detailed drawings for each room in a house?

Architectural design

A)

✓ Component-level design

B)

Data design

C)

Interface design

D)

22 INCORRECT

The deployment design elements specify the build order for the software components.

True

A)

✓ False

B)

23 CORRECT

One of the key problems in software reuse is the inability to find existing reusable design patterns when hundreds of candidates exist.

✓ True

A)

False

B)

24 INCORRECT

Design patterns are best thought of as coding patterns.

True

A)

✓ False

B)

25 INCORRECT

Frameworks and design patterns are the same thing as far as designers are concerned.

True

A)

✓ False

B)

Lecture-10

The correct answer for each question is indicated by a ✓.

1 CORRECT

The best representation of system architecture is an operational software prototype.

A) True

✓ B) False

Feedback:

2 CORRECT

The architectural representations can be an enabler for communication among project stakeholders.

✓ A) True

B) False

Feedback:

3 INCORRECT

Which of these characteristics are true of a data warehouse, but not a typical data base?

A) business level orientation

B) currency of information

C) integration

D) nonvolatility

✓ E) both c and d

Feedback:

4 CORRECT

Data design actually begins during the creation of the analysis model, not the architectural model.

✓ A) True

B) False

Feedback:

5 INCORRECT

An architectural style encompasses which of the following elements?

A) constraints

B) set of components

semantic models

C)
syntactic models
D)
✓ a, b and c
E)
Feedback:

6
INCORRECT

To determine the architectural style or combination of styles that best fits the proposed system, requirements engineering is used to uncover

algorithmic complexity
A)
✓ characteristics and constraints
B)
control and data
C)
design patterns
D)
Feedback:

7
INCORRECT

Before an architectural pattern can be chosen for use in a specific system it must have a code implementation to facilitate its reuse.

True
A)
✓ False
B)
Feedback:

8
INCORRECT

The criteria used to assess the quality of an architectural design should be based on system

accessibility
A)
control
B)
data
C)
implementation
D)
✓ both b and c
E)
Feedback:

9
INCORRECT

During the process of modeling the system in context, systems that interact with the target system are represented as

Peer-level systems
A)

Subordinate systems
B)

Superordinate systems
C)

Working systems
D)

a, b and c
E)

Feedback:

10 CORRECT

Once selected, archetypes always need to be refined further as architectural design proceeds.

True
A)

False
B)

Feedback:

11 CORRECT

Which of the following is not an example of infrastructure components that may need to be integrated into the software architecture?

Communications components
A)

Database components
B)

Interface components
C)

Memory management components
D)

Feedback:

12 INCORRECT

In the architecture trade-off analysis method the architectural style should be described using the

data flow view
A)

module view
B)

process view
C)

user view
D)

a, b and c
E)

Feedback:

13

Quantitative methods for assessing the quality of proposed architectural designs

INCORRECT

are readily available.

A) True

B) False ✓

Feedback:

---

14 INCORRECT

A useful technique for evaluating the overall complexity of a proposed architecture is to look at the component

A) cohesion flow

B) dependencies

C) sharing dependencies

D) size

E) both b and c ✓

Feedback:

---

15 INCORRECT

When the overall flow in a segment of a data flow diagram is largely sequential and follows straight-line paths, _____ is present.

A) low coupling

B) good modularity

C) transaction flow

D) transform flow ✓

Feedback:

---

16 INCORRECT

When a single item that triggers other data flow along one of many paths of a data flow diagram, _____ characterizes the information flow.

A) high coupling

B) poor modularity

C) transaction flow ✓

D) transform flow

Feedback:

---

17 CORRECT

When you encounter both transform flow and transaction flow in the same DFD the flow is partitioned and the appropriate mapping technique is used on each part of the DFD.

✓ A) True

B) False

Feedback:

---

18 INCORRECT

In transaction mapping the first level factoring results in the

A) creation of a CFD

✓ B) derivation of the control hierarchy

C) distribution of worker modules

D) refinement of the module view

Feedback:

---

19 INCORRECT

A successful application of transform or transaction mapping to create an architectural design is supplemented by

A) entity relationship diagrams

B) module interface descriptions

C) processing narratives for each module

D) test cases for each module

✓ E) both b and c

Lecture-11

The correct answer for each question is indicated by a ✓.

1 INCORRECT

In the most general sense a component is a modular building block for computer software.

✓ A) True

B) False

Feedback:

2 INCORRECT

In the context of object-oriented software engineering a component contains

A) attributes and operations

B) instances of each class

C) roles for each actor (device or user)

✓ **D)** a set of collaborating classes

Feedback:

3 INCORRECT

In traditional software engineering, modules must serve in which of the following roles?

A) Control component

B) Infrastructure component

C) Problem domain component

✓ **D)** All of the above

Feedback:

4 CORRECT

Software engineers always need to create components from scratch in order to meet customer expectations fully.

A) True

✓ **B)** False

Feedback:

5 INCORRECT

Which of the following is not one of the four principles used to guide component-level design?

A) Dependency Inversion Principle

B) Interface Segregation Principle

C) Open-Closed Principle

✓ **D)** Parsimonious Complexity Principle

Feedback:

6 INCORRECT

During component-level design it is customary to ignore organization issues

like subsystem membership or packaging.

A) True

✓ B) False

Feedback:

7 UNANSWERED

The use of stereotypes can help identify the nature of components at the detailed design level.

A) True

B) False

8 INCORRECT

Classes and components that exhibit functional, layer, or communicational cohesion are relatively easy to implement, test, and maintain.

✓ A) True

B) False

Feedback:

9 CORRECT

Software coupling is a sign of poor architectural design and can always be avoided in every system.

A) True

✓ B) False

Feedback:

10 INCORRECT

In component design, elaboration requires which of the following elements to be described in detail?

A) Source code

B) Attributes

C) Interfaces

D) Operations

✓ E) b, c and d

Feedback:

11 INCORRECT

In component-level design "persistent data sources" refer to

Component libraries
A)

Databases
B)

Files
C)

All of the above
D)

both b and c
E)

Feedback:

12 INCORRECT

The object constraint language (OCL) complements UML by allowing a software engineer to use a formal grammar to construct unambiguous statements about design model elements.

True
A)

False
B)

Feedback:

13 CORRECT

OCL is not strong enough to be used to describe pre- or post conditions for design actions.

True
A)

False
B)

Feedback:

14 INCORRECT

Which of these constructs is used in structured programming?

branching
A)

condition
B)

repetition
C)

sequence
D)

b, c, and d
E)

Feedback:

15 INCORRECT

Which of these is a graphical notation for depicting procedural detail?

process diagram

A) decision table

B) ER diagram

C) flowchart ✓

D)

Feedback:

16 INCORRECT

A decision table should be used

A) to document all conditional statements

B) to guide the development of the project management plan

C) only when building an expert system

D) when a complex set of conditions and actions appears in a component ✓

Feedback:

17 INCORRECT

A program design language (PDL) is often a

A) combination of programming constructs and narrative text ✓

B) legitimate programming language in its own right

C) machine readable software development language

D) useful way to represent software architecture

Feedback:

18 INCORRECT

Which of these criteria are useful in assessing the effectiveness of a particular design notation?

A) maintainability

B) modularity

C) simplicity

D) size

E) a, b, and c ✓

Lecture-12

The correct answer for each question is indicated by a ✓.

1 INCORRECT

Which of the following interface design principles does not allow the user to remain in control of the interaction with a computer?

A) allow interaction to interruptible

B) allow interaction to be undoable

C) hide technical internals from casual users

✓ **D)** only provide one defined method for accomplishing a task

Feedback:

2 INCORRECT

Which of the following interface design principles reduces the user's memory load?

A) define intuitive shortcuts

B) disclose information in a progressive fashion

C) establish meaningful defaults

D) provide an on-line tutorial

✓ **E)** answers a, b and c

Feedback:

3 CORRECT

The reason for reducing the user's memory load is make his or her interaction with the computer quicker to complete.

A) True

✓ **B)** False

Feedback:

4 CORRECT

Interface consistency implies that

A) each application should have its own distinctive look and feel

B) input mechanisms remain the same throughout the application

C) navigational methods are context sensitive

visual information is organized according to a design standard

D)

both b and d

E)

Feedback:

5 CORRECT

If past interactive models have created certain user expectations it is not generally good to make changes to the model.

True

A)

False

B)

Feedback:

6 INCORRECT

Which model depicts the profile of the end users of a computer system?

design model

A)

implementation model

B)

user model

C)

user's model

D)

Feedback:

7 INCORRECT

Which model depicts the image of a system that an end user creates in his or her head?

design model

A)

user model

B)

system model

C)

system perception

D)

Feedback:

8 CORRECT

Which model depicts the look and feel of the user interface along with all supporting information?

Implementation model

A)

user model

B)

user's model

C)

system perception

D)

Feedback:

9 INCORRECT

Which of these framework activities is not normally associated with the user interface design processes?

cost estimation

A)

interface construction

B)

interface validation

C)

user and task analysis

D)

Feedback:

10 INCORRECT

Which approach(es) to user task analysis can be useful in user interface design?

have users indicate their preferences on questionnaires

A)

rely on the judgement of experienced programmers

B)

study existing computer-based solutions

C)

observe users performing tasks manually

D)

both c and d

E)

Feedback:

11 INCORRECT

Object-oriented analysis techniques can be used to identify and refine user task objects and actions without any need to refer to the user voice.

True

A)

False

B)

Feedback:

12 CORRECT

The computer's display capabilities are the primary determinant of the order in which user interface design activities are completed.

True

A)

False

B)

Feedback:

13 UNANSWERED

It is sometimes possible that the interface designer is constrained by environmental factors that mitigate against ease of use for many users.

A) True

B) False

14 INCORRECT

One means of defining user interface objects and actions is to conduct a grammatical parse of the user scenario.

✓ **A)** True

B) False

Feedback:

15 CORRECT

Interface design patterns typically include a complete component-level design (design classes, attributes, operations, and interfaces).

✓ **A)** True

B) False

Feedback:

16 INCORRECT

Several common design issues surface for almost every user interface including

A) adaptive user profiles

B) error handling resolution of graphics

C) displays system

D) response time

✓ **E)** both b and d

Feedback:

17 CORRECT

Add-on help facilities are almost always better received by users than integrated help facilities.

A) True

✓ **B)** False

Feedback:

18 INCORRECT

User interface development systems typically provide several mechanisms for building interface prototypes including

A) code generation

B) drawing tools

C) input validation

D) windows handlers

✓ E) both c and d

Feedback:

19 INCORRECT

Usability questionnaires are most meaningful to the interface designers when completed by

A) customers

B) experienced programmers

✓ C) product users

D) project managers

Feedback:

20 INCORRECT

Several usability measures can be collected while observing users interacting with a computer system including

A) down time for the application

B) number of user errors

C) software reliability

D) time spent looking at help materials

✓ E) both b and d

Lecture-13

The correct answer for each question is indicated by a ✓.

1 INCORRECT

In software quality assurance work there is no difference between software

verification and software validation.

A) True

✓ B) False

2 CORRECT

The best reason for using Independent software test teams is that

A) software developers do not need to do any testing

✓ B) a test team will test the software more thoroughly

C) testers do not get involved with the project until testing begins

D) arguments between developers and testers are reduced

3 CORRECT

What is the normal order of activities in which traditional software testing is organized?
a. integration testing
b. system testing
c. unit testing
d.validation testing

A) a, d, c, b

B) b, d, a, c

✓ C) c, a, d, b

D) d, b, c, a

4 INCORRECT

Class testing of object-oriented software is equivalent to unit testing for traditional software.

✓ A) True

B) False

5 CORRECT

By collecting software metrics and making use of existing software reliability models it is possible to develop meaningful guidelines for determining when software testing is finished.

✓ A) True

B) False

6 INCORRECT

Which of the following strategic issues needs to be addressed in a successful software testing process?

A) conduct formal technical reviews prior to testing

B) specify requirements in a quantifiable manner

C) use independent test teams

D) wait till code is written prior to writing the test plan

✓ E) both a and b

7 INCORRECT

Which of the following need to be assessed during unit testing?

A) algorithmic performance

B) code stability

C) error handling

D) execution paths

✓ E) both c and d

8 CORRECT

Drivers and stubs are not needed for unit testing because the modules are tested independently of one another.

A) True

✓ B) False

9 INCORRECT

Top-down integration testing has as it's major advantage(s) that

A) low level modules never need testing

B) major decision points are tested early

C) no drivers need to be written

D) no stubs need to be written

✓ E) both b and c

10 INCORRECT

Bottom-up integration testing has as it's major advantage(s) that

A) major decision points are tested early

B) no drivers need to be written

✓ C) no stubs need to be written

D) regression testing is not required

11 INCORRECT

Regression testing should be a normal part of integration testing because as a new module is added to the system new

A) control logic is invoked

B) data flow paths are established

C) drivers require testing

D) all of the above

✓ E) both a and b

12 INCORRECT

Smoke testing might best be described as

A) bulletproofing shrink-wrapped software

✓ B) rolling integration testing

C) testing that hides implementation errors

D) unit testing for small programs

13 CORRECT

When testing object-oriented software it is important to test each class operation separately as part of the unit testing process.

A) True

✓ B) False

14 INCORRECT

The OO testing integration strategy involves testing

✓ A) groups of classes that collaborate or communicate in some way

B) single operations as they are added to the evolving class implementation

C) operator programs derived from use-case scenarios

D) none of the above

15 CORRECT

The focus of validation testing is to uncover places that a user will be able to observe failure of the software to conform to its requirements.

✓ **A)** True

B) False

16 INCORRECT

Software validation is achieved through a series of tests performed by the user once the software is deployed in his or her work environment.

A) True

✓ **B)** False

17 CORRECT

Configuration reviews are not needed if regression testing has been rigorously applied during software integration.

A) True

✓ **B)** False

18 INCORRECT

Acceptance tests are normally conducted by the

A) developer

✓ **B)** end users

C) test team

D) systems engineers

19 INCORRECT

Recovery testing is a system test that forces the software to fail in a variety of ways and verifies that software is able to continue execution without interruption.

A) True

✓ **B)** False

20 CORRECT

Security testing attempts to verify that protection mechanisms built into a system protect it from improper penetration.

✓ **A)** True

B) False

21 INCORRECT

Stress testing examines the pressures placed on the user during system use in extreme environments.

A) True

✓ B) False

22 INCORRECT

Performance testing is only important for real-time or embedded systems.

A) True

✓ B) False

23 CORRECT

Debugging is not testing, but always occurs as a consequence of testing.

✓ A) True

B) False

24 INCORRECT

Which of the following is an approach to debugging?

A) backtracking

B) brute force

C) cause elimination

D) code restructuring

E) a, b, and c

Lecture-14

The correct answer for each question is indicated by a ✓.

1 INCORRECT

With thorough testing it is possible to remove all defects from a program prior to delivery to the customer.

A) True

✓ B) False

Feedback:

2 INCORRECT

Which of the following are characteristics of testable software?

A) observability

simplicity

B) stability

C) all of the above

D)

Feedback:

3 CORRECT

The testing technique that requires devising test cases to demonstrate that each program function is operational is called

A) black-box testing

B) glass-box testing

C) grey-box testing

D) white-box testing

Feedback:

4 INCORRECT

The testing technique that requires devising test cases to exercise the internal logic of a software module is called

A) behavioral testing

B) black-box testing

C) grey-box testing

D) white-box testing

Feedback:

5 INCORRECT

What types of errors are missed by black-box testing and can be uncovered by white-box testing?

A) behavioral errors

B) logic errors

C) performance errors

D) typographical errors

E) both b and d

Feedback:

6 INCORRECT

Program flow graphs are identical to program flowcharts.

A) True

✓ B) False

Feedback:

7 INCORRECT

The cyclomatic complexity metric provides the designer with information regarding the number of

A) cycles in the program

B) errors in the program

✓ C) independent logic paths in the program

D) statements in the program

Feedback:

8 CORRECT

The cyclomatic complexity of a program can be computed directly from a PDL representation of an algorithm without drawing a program flow graph.

✓ A) True

B) False

Feedback:

9 INCORRECT

Condition testing is a control structure testing technique where the criteria used to design test cases is that they

A) rely on basis path testing

✓ B) exercise the logical conditions in a program module

C) select test paths based on the locations and uses of variables

D) focus on testing the validity of loop constructs

Feedback:

10 INCORRECT

Data flow testing is a control structure testing technique where the criteria used to design test cases is that they

A) rely on basis path testing

B) exercise the logical conditions in a program module

✓ C) select test paths based on the locations and uses of variables

D) focus on testing the validity of loop constructs

Feedback:

11 INCORRECT

Loop testing is a control structure testing technique where the criteria used to design test cases is that they

A) rely basis path testing

B) exercise the logical conditions in a program module

C) select test paths based on the locations and uses of variables

✓ D) focus on testing the validity of loop constructs

Feedback:

12 INCORRECT

Black-box testing attempts to find errors in which of the following categories

A) incorrect or missing functions

B) interface errors

C) performance errors

✓ D) all of the above

E) none of the above

Feedback:

13 INCORRECT

Graph-based testing methods can only be used for object-oriented systems

A) True

✓ B) False

Feedback:

14 CORRECT

Equivalence testing divides the input domain into classes of data from which test cases can be derived to reduce the total number of test cases that must be developed.

✓ A) True

B) False

B)
Feedback:

15 INCORRECT

Boundary value analysis can only be used to do white-box testing.

True
A)

✓ False
B)
Feedback:

16 INCORRECT

Comparison testing is typically done to test two competing products as part of customer market analysis prior to product release.

True
A)

✓ False
B)
Feedback:

17 CORRECT

Orthogonal array testing enables the test designer to maximize the coverage of the test cases devised for relatively small input domains.

✓ True
A)

False
B)
Feedback:

18 UNANSWERED

Test case design "in the small" for OO software is driven by the algorithmic detail of the individual operations.

True
A)

False
B)

19 INCORRECT

Encapsulation of attributes and operations inside objects makes it easy to obtain object state information during testing.

True
A)

✓ False
B)
Feedback:

20 CORRECT

Use-cases can provide useful input into the design of black-box and state-based tests of OO software.

✓ True
A)

False

B)

Feedback:

21 INCORRECT

Fault-based testing is best reserved for

conventional software testing

A)

✓ operations and classes that are critical or suspect

B)

use-case validation

C)

white-box testing of operator algorithms

D)

Feedback:

22 INCORRECT

Testing OO class operations is made more difficult by

encapsulation

A)

inheritance

B)

polymorphism

C)

✓ both b and c

D)

Feedback:

23 CORRECT

Scenario-based testing

✓ concentrates on actor and software interaction

A)

misses errors in specifications

B)

misses errors in subsystem interactions

C)

both a and b

D)

Feedback:

24 INCORRECT

Deep structure testing is not designed to

examine object behaviors

A)

exercise communication mechanisms

B)

exercise object dependencies

C)
✓ exercise structure observable by the user
D)
Feedback:

25 INCORRECT

Random order tests are conducted to exercise different class instance life histories.

✓ True
A)
False
B)
Feedback:

26 INCORRECT

Which of these techniques is not useful for partition testing at the class level

attribute-based partitioning
A)
category-based partitioning
B)
✓ equivalence class partitioning
C)
state-based partitioning
D)
Feedback:

27 INCORRECT

Multiple class testing is too complex to be tested using random test cases.

True
A)
✓ False
B)
Feedback:

28 INCORRECT

Tests derived from behavioral class models should be based on the

data flow diagram
A)
object-relation diagram
B)
✓ state diagram
C)
use-case diagram
D)
Feedback:

29 INCORRECT

Client/server architectures cannot be properly tested because network load is highly variable.

A) True

✓ B) False

Feedback:

30 INCORRECT

Real-time applications add a new and potentially difficult element to the testing mix

A) performance

B) reliability

C) security

✓ D) time

Lecture-15

The correct answer for each question is indicated by a ✓.

1 CORRECT

Conformance to implicit requirements and customer expectations has no place in modern software quality assurance work.

A) True

✓ B) False

2 INCORRECT

Which of the following is not one of three software product aspects addressed by McCall's software quality factors?

A) ability to undergo change

B) adaptability to new environments

C) operational characteristics

✓ D) production costs and scheduling

3 CORRECT

The ISO 9126 quality standards for computer software are useful because they lend themselves to direct measurement of software attributes.

A) True

✓ B) False

4 CORRECT

Most technical software metrics described in this chapter represent indirect

measures of software attributes that are useful in the quantitative assessment of software quality.

✓ A) True

B) False

5 INCORRECT

Which of these are reasons for using technical product measures during software development?

A) large body of scientific evidence supports their use

✓ B) provides software engineers with an objective mechanism for assessing software quality

C) they allow all software quality information to be expressed unambiguously as a single number

D) all of the above

6 CORRECT

Which measurement activity is missing from the list below?
Formulation
Collection
Analysis
Interpretation

A) design

✓ B) feedback

C) measurement

D) quantification

7 INCORRECT

The Goal/Question/Metric (GQM) paradigm was developed as a technique for assigning blame for software failures.

A) True

✓ B) False

8 CORRECT

One of the most important attributes for a software product metric is that it should be

✓ A) easy to compute

B) qualitative in nature

C) reliable over time

widely applicable
D)

9 CORRECT

In many cases metrics for one model may be used in later software engineering activities (e.g., design metrics may be used in test planning).

✓ True
A)

False
B)

10 INCORRECT

The function point metric is an example of metric that can be used to assist with technical decision-making based on the analysis model information, without making use of historical project data.

True
A)

✓ False
B)

11 INCORRECT

The specification metrics proposed by Davis address which two characteristics of the software requirements?

functionality and performance
A)

performance and completeness
B)

✓ specificity and completeness
C)

specificity and functionality
D)

12 INCORRECT

Architectural design metrics focus on

architectural structure
A)

data structural relationships
B)

internal module complexity
C)

module effectiveness
D)

✓ both a and d
E)

13 INCORRECT

Which of the following is not a measurable characteristic of an object-oriented design?

completeness
A)

✓ efficiency
B)

size
C)

volatility
D)

14 INCORRECT

The depth of inheritance tree (DIT) metric can give an OO software designer a reading on the

attributes required for each class
A)

✓ completion time required for system implementation
B)

complexity of the class hierarchy
C)

level of object reusability achieved
D)

15 INCORRECT

Because the class is the dominant unit in OO systems, there is no call for the definition of class-oriented metrics.

True
A)

✓ False
B)

16 INCORRECT

If you encounter a class with a large responsibility (large class size or CS value) you should consider

making it a base class
A)

making it a subclass
B)

✓ partitioning the class
C)

starting a new class hierarchy
D)

17 INCORRECT

Component-level metrics include measures of

complexity
A)

coupling
B)

module cohesion
C)

performance
D)

✓ a, b, and c
E)

18 CORRECT

Because the class is the dominant unit in OO systems, relatively few metrics

have been proposed for operations that reside within a class.

✓ A) True

B) False

19 INCORRECT

Interface metrics are used to assess the complexity of the module's input and output relationships with external devices.

A) True

✓ B) False

20 INCORRECT

Halstead's source code metrics are based on the number of

A) modules in the program

B) operands in the program

C) operators in the program

D) volume elements in the program

✓ E) both b and c

21 INCORRECT

Most testing metrics actually focus on the process of testing rather than the technical characteristics of the tests themselves.

✓ A) True

B) False

22 INCORRECT

Testing effort can also be estimated using metrics derived from cylcomatic complexity.

✓ A) True

B) False

23 INCORRECT

Software testing metrics fall into two broad categories

A) metrics that focus on defect removal effectiveness

B) metrics that focus on test coverage

C) metrics that estimate the duration of the testing process

metrics that predict the number of test cases required

D)

✓ both b and d

E)

24 INCORRECT

The IEEE software maturity index is used to provide a measure of the

A) maintainability of a software product based on its availability

B) relative age of a software product being considered for retirement

C) reliability of a software product following regression testing

✓ D) stability of a software product as it is modified during maintenance

---

Lecture-16

The correct answer for each question is indicated by a ✓.

1 INCORRECT

Which of the following is not a characteristic of a WebApp?

A) content driven

B) continuously evolving

✓ C) easily measurable

D) network intensive

Feedback:

2 INCORRECT

Which of these application categories are commonly encountered in WebE work?

A) informational

B) transaction-oriented

C) portal

✓ D) all of the above

Feedback:

3 INCORRECT

WebApps must be developed and deployed quickly, making the application of software engineering processes impossible.

A) True

✓ ○ False
B)
Feedback:

4 INCORRECT

Which process model best describes WebE?

○ Linear model
A)
✓ ○ Incremental model
B)
○ Formal model
C)
○ all of the above
D)
Feedback:

5 INCORRECT

The mechanics of software engineering analysis, design, and testing must be adapted to accommodate the special characteristics of WebApps.

✓ ○ True
A)
○ False
B)
Feedback:

6 INCORRECT

Which of the following technologies is important to Web engineers?

○ component-based development
A)
○ internet standards
B)
○ security
C)
✓ ○ all of the above
D)
Feedback:

7 CORRECT

An evolutionary process model would never be chosen over an agile process model to build a WebApp.

○ True
A)
✓ ○ False
B)
Feedback:

8 INCORRECT

Which of the following is not one of the characteristics that we need to take into account when a process framework for WebE is formulated.

Changes occur frequently
A)

✓ Graphic design expertise is hard to acquire
B)

Timelines are short
C)

WebApps are delivered incrementally
D)

Feedback:

9 INCORRECT

During the analysis/formulation step of the WebE process two types of goals need to be defined

applicative goals and aesthetic goals
A)

✓ applicative goals and informational goals
B)

information goals and performance goals
C)

aesthetic goals and performance goals
D)

Feedback:

10 CORRECT

With extremely short time-lines it is impossible to develop plans for WebApp development projects.

True
A)

✓ False
B)

Feedback:

11 INCORRECT

Which activities are conducted during the WebE modeling process?

content analysis
A)

refine user tasks
B)

design architecture
C)

✓ all of the above
D)

Feedback:

12 INCORRECT

Which test(s) are not performed during WebE construction?

configuration
A)

navigation
B)

✓ reliability
C)

usability
D)

Feedback:

13 INCORRECT

WebE are usually delivered to users untested and then debugged as user complaints are registered.

True
A)

✓ False
B)

Feedback:

14 INCORRECT

Since WebApps are fairly standard it is not important for developers to understand the customer's business needs and objectives.

True
A)

✓ False
B)

Feedback:

15 CORRECT

Scenario-based approaches to describing user interaction are good to use in WebE.

✓ True
A)

False
B)

Feedback:

16 INCORRECT

Since WebApps are usually developed using agile processes, modeling can safely be ignored or skipped altogether.

True
A)

✓ False
B)

Lecture-17

The correct answer for each question is indicated by a ✓.

1 CORRECT

Formulation and requirements gathering are distinct and different processes during WebE.

True
A)

✓ False
B)

Feedback:

2 INCORRECT

Which of these is not one of the formulation questions asked during Web engineering?

What are the objectives for the WebApp?
A)

What is the business need for the WebApp?
B)

Who will use the WebApp?
C)

✓ Will you need to outsource development of the WebApp?
D)

Feedback:

3 INCORRECT

Which of these are goals for WebE requirements gathering?

Define user interaction scenarios
A)

Determine performance constraints
B)

Identify content requirements
C)

Identify WebApp development tools
D)

✓ a, b, and c
E)

Feedback:

4 CORRECT

During requirements gathering Web engineers should attempt to define the smallest reasonable number of user classes.

✓ True
A)

False
B)

Feedback:

5 INCORRECT

Which type of analysis is not conducted during the WebE process?

content analysis
A)

functional analysis
B)

user interaction analysis

C)

✓ market analysis

D)

Feedback:

6 CORRECT

One of the things that distinguish the development of WebApps from other software products is the need to combine the work products from both technical and non-technical tasks into a single product.

✓ True

A)

False

B)

Feedback:

7 CORRECT

Which of these roles is not usually assigned to members of the WebE team?

content developer

A)

✓ marketing specialist

B)

Web master

C)

Web publisher

D)

Feedback:

8 CORRECT

In building a WebE team strong team leadership is essential.

✓ True

A)

False

B)

Feedback:

9 INCORRECT

Once formulation is complete Web engineering

is complete.

A)

may be performed in-house.

B)

may be outsourced.

C)

✓ both b or c

D)

Feedback:

10

CORRECT

Outsourcing WebApps is common practice, it is important to perform thorough analysis of the application and even create a rough design internally before selecting a vendor.

✓ **A)** True

B) False

Feedback:

---

11 INCORRECT

Developing WebApps in-house is no different than developing any other piece of software.

A) True

✓ **B)** False

Feedback:

---

12 CORRECT

Which of these is not a goal for using metrics in WebE?

A) to provide basis for effort estimation

✓ **B)** to provide basis for making personnel decisions

C) to provide indication of business success

D) to provide indication of technical quality

Feedback:

---

13 INCORRECT

Which of these is not a category for WebE effort metrics?

A) application authoring

B) media authoring

C) page authoring

✓ **D)** scenario authoring

Feedback:

---

14 INCORRECT

Business people lag considerably behind Web engineers in developing, collecting, and using metrics for WebApps.

A) True

✓ **B)** False

Feedback:

15 CORRECT

WebApps need to be built with such urgency that planning is not possible.

- A) True
- ✓ B) False

Feedback:

16 CORRECT

WebApps are extremely volatile, but this does not eliminate the need to understand the WebApp requirements.

- ✓ A) True
- B) False

Feedback:

17 INCORRECT

Any team of experienced software engineers can develop WebApps.

- A) True
- ✓ B) False

Feedback:

18 INCORRECT

WebApps involve so little programming that formal testing is not needed before releasing the product to the users.

- A) True
- ✓ B) False

Lecture-18

The correct answer for each question is indicated by a ✓.

1 INCORRECT

Which of the following is not one of the WebApp requirements analysis tasks?

- A) Analysis modeling
- B) Formulation
- C) Requirements gathering
- ✓ D) User interface prototyping

2 INCORRECT

User hierarchies are used to replace UML user representations for WebApps having large numbers of user categories?

A) True

✓ **B)** False

3 INCORRECT

WebApp use-cases might be described as bundles of functionality.

A) True

✓ **B)** False

4 INCORRECT

As use-cases are organized into functional packages, each functional package is assessed to ensure that it is

A) Comprehensive

B) Highly cohesive

C) Loosely coupled

✓ **D)** All of the above

5 INCORRECT

Dynamic elements of WebApp analysis models describe how users interaction with the system.

A) True

✓ **B)** False

6 INCORRECT

Which is not one of the analysis activities that is used to create a complete analysis model?

A) Configuration analysis

B) Content analysis

C) Functional analysis

✓ **D)** Data analysis

7 INCORRECT

The content model contains dynamic elements that encompass the WebApp content objects.

A) True

✓ False

B)

8 CORRECT

Content objects are extracted from use cases by examining the scenarios description for direct or indirect content references.

A) True

B) False

9 UNANSWERED

In building a content hierarchy is sufficient to examine a list of content objects and a brief description of each object.

A) True

B) False

10 INCORRECT

By examining each use-case and building a class model for 1 or 2 representative users it is possible to derive the needed analysis classes.

A) True

B) False

11 INCORRECT

What are the most useful UML diagrams and related information that can be used to represent a WebApp interaction model?

A) activity diagrams, class diagrams, state diagrams, interface prototype

B) activity diagrams, collaboration diagrams, sequence diagrams, state diagrams

C) use-cases, sequence diagrams, state diagrams, interface prototype

D) use-cases, sequence diagrams, state diagrams, sequence diagrams

12 INCORRECT

A user interface prototype should not be created during WebApp analysis because doing so involves programming.

A) True

B) False

13 CORRECT

UML activity diagrams can be used to represent the user observable functionality delivered by the WebApp as well as the operations contained in each analysis class.

A) True

B) False

14

UNANSWERED

The construction details indicating how the user will invoke an operation are deferred until the WebApp design phase.

A) True

B) False

15 CORRECT

UML deployment diagrams can be used to create the configuration model for a complex WebApp.

✓ A) True

B) False

16 INCORRECT

Configuration analysis focuses on the architecture of the user's Web browsing environment.

A) True

✓ B) False

17 INCORRECT

Which of these are not steps of relationship-navigation analysis?

A) Element analysis

B) Evaluation analysis

✓ C) Functional analysis

D) Stakeholder analysis

18 CORRECT

The answers to the relationship analysis questions help the Web engineer position a content element within the WebApp.

✓ A) True

B) False

19 INCORRECT

Once the WebApp architecture is modeled the Web engineer must consider requirements that dictate how users will navigate from one content element to another.

A) True

✓ B) False

Lecture-19

The correct answer for each question is indicated by a ✓.

1 INCORRECT

Which of the following characteristics should not be used to assess the quality of a WebApp?

- **A)** aesthetics
- **B)** reliability
- **C)** maintainability
- **D)** usability

2 INCORRECT

Which of the following are design goals for every WebApp?

- **A)** Simplicity
- **B)** Consistency
- **C)** Navigability
- **D)** Visual appeal
- **E)** all of the above

3 CORRECT

Which of the following are not part of the design pyramid for WebE design?

- **A)** Architectural design
- **B)** Business case design
- **C)** Content design
- **D)** Navigation design

4 CORRECT

Every WebApp user interface should be easy to use, easy to navigate, error-free and functional.

- **A)** True
- **B)** False

5 INCORRECT

With WebApps content is everything, a poorly defined user interface will be quickly overlooked by frequent users.

- **A)** True
- **B)** False

6 **INCORRECT**

Which of these are WebApp interaction mechanisms?

- **A)** Graphic icons
- **B)** Graphic images
- **C)** Navigation menus
- ✓ **D)** All of the above

7 **INCORRECT**

UML does not have any representation schemas that are useful in building WebApp design models.

- **A)** True
- ✓ **B)** False

8 **INCORRECT**

Screen layout design has several widely accepted standards based on human factors research.

- **A)** True
- ✓ **B)** False

9 **INCORRECT**

Graphic design considers every aspect of the look and feel of a WebApp.

- ✓ **A)** True
- **B)** False

10 **INCORRECT**

Content design is conducted by

- **A)** Copywriters and graphic designer
- **B)** Web engineers
- ✓ **C)** both a and b
- **D)** none of the above

11 **CORRECT**

Content objects have both information attributes defined during analysis and implementation specific attributes specified during design.

- ✓ **A)** True
- **B)** False

12 **INCORRECT**

Content objects are not normally chunked into Web pages until the implementation activities begin.

- **A)** True
- ✓ **B)** False

13 **INCORRECT**

Which of the following is not one of the browsing primitives normally found in WebApp interfaces.

- **A)** Conditional browsing
- **B)** Nested browsing
- ✓ **C)** Recursive browsing
- **D)** Sequential browsing

14 **CORRECT**

Content architecture and WebApp architecture are pretty much the same thing for many WebApps?

- **A)** True
- ✓ **B)** False

15 **INCORRECT**

Which of the following is not one of the content architectural structures used by web engineers?

- **A)** linear
- **B)** grid
- **C)** hierarchical
- ✓ **D)** parallel

16 **INCORRECT**

MVC is a three layer architecture that contains a

- **A)** machine, view, content objects
- **B)** model, view, and content objects
- ✓ **C)** model, view, and controller
- **D)** machine, view, controller

17

Web navigational design involves creating a semantic navigational unit for each

CORRECT

goal associated with each defined user role.

✓ A) True

B) False

18 INCORRECT

To allow the user to feel in control of a WebApp, it is a good idea to mix both horizontal and vertical navigation mechanisms on the same page.

A) True

✓ B) False

19 INCORRECT

Component level design for WebApps is very similar to component level design for other software delivery environments.

✓ A) True

B) False

20 INCORRECT

Which of the following is a navigation pattern used during web-based design?

A) cycle

B) counterpoint

C) sieve

✓ D) all of the above

21 INCORRECT

Which of these is not one of the design activities associated with object-oriented hypermedia design?

A) abstract interface design

B) conceptual design

✓ C) content design

D) navigational design

22 INCORRECT

Most WebApps can be easily characterized by judicious use of widely recognized suites of software metrics?

A) True

✓ B) Fals

Lecture-20

The correct answer for each question is indicated by a ✓.

1 INCORRECT

Since content is central to users of WebApps testing is less important than for conventional software products.

- **A)** True
- ✓ **B)** False

2 CORRECT

Which of the following is not one of the dimensions of quality used to assess a WebApp.

- **A)** Content
- ✓ **B)** Maintainability
- **C)** Navigability
- **D)** Usability

3 CORRECT

WebApps require special testing methodologies because WebApp errors have several unique characteristics.

- ✓ **A)** True
- **B)** False

4 INCORRECT

Since WebApps evolve continuously, the testing process is an on-going activity, conducted by the Web support staff using regression tests.

- ✓ **A)** True
- **B)** False

5 INCORRECT

Test planning is not used in WebApp testing.

- **A)** True
- ✓ **B)** False

6 INCORRECT

As the WebApp architecture is constructed which types of testing are used as integration tests?

- **A)** Component testing

B) Content testing

C) Navigation testing

D) Usability testing

✓ E) both a and c

7 CORRECT

Which of the following is not one of the objectives of WebApp content testing?

A) Find organizational or structure errors

✓ B) Identify linking errors

C) Uncover semantic errors

D) Uncover syntactic errors

8 INCORRECT

Database testing is very rarely a part of WebApp content testing.

A) True

✓ B) False

9 INCORRECT

The overall strategy for interface testing is to uncover errors

A) in navigation semantics

B) in overall usabililty

C) related to specific interface mechanisms

✓ D) both a and c

10 INCORRECT

Which of the following is not a WebApp interface mechanism?

A) Browser

B) Cookies

✓ C) Forms

D) Links

11

When testing WebApp interface semantics, each use-case is used as input for

CORRECT

the design of a testing sequence.

✓ A) True

B) False

12 INCORRECT

Usability tests should be designed and executed by intended users for a given WebApp.

A) True

✓ B) False

13 INCORRECT

WebApp compatibility testing is conducted to be sure that the user model for usage scenario matched the user category assigned to a given user.

A) True

✓ B) False

14 INCORRECT

Which test case design technique(s) are appropriate for WebApp component-level testing?

A) Boundary value analysis

B) Equivalence partitioning

C) Path testing

✓ D) All of the above

15 INCORRECT

The purpose of WebApp navigation syntactic testing is to ensure the correct appearance of each navigation mechanism.

A) True

✓ B) False

16 CORRECT

Both Web engineers and non-technical users conduct navigation semantics testing for WebApps.

✓ A) True

B) False

17 INCORRECT

Which of following is not one of the elements that needs to be considered when constructing WebApp server-side configuration tests?

✓ Browser compatibility

A) Database software integration

B) Operating system compatibility

C) System security measures

D)

18 CORRECT

To design client-side configuration tests each user category is assessed to reduce the number of configuration variables to a manageable number.

✓ A) True

B) False

19 INCORRECT

Which of the following is not a testable WebApp security element.

A) Authentication

B) Encryption

C) Firewalls

✓ D) Penetration

20 INCORRECT

WebApp performance tests are designed to

A) assess WebApp usability

B) evaluate page loading times

✓ C) simulate real-world loading situations

D) test network connectivity

21 INCORRECT

Load testing involves determining the input of which 3 variables?

✓ A) N, T, D

B) N, T, P

C) T, D, P

D) N, D, P

22 CORRECT

WebApp stress testing is a continuation load testing.

✓ A) True

B) False

Lecture-21

The correct answer for each question is indicated by a ✓.

1 CORRECT

Effective software project management focuses on four P's which are

A) people, performance, payoff, product

B) people, product, performance, process

✓ C) people, product, process, project

D) people, process, payoff, product

2 CORRECT

Organizations that achieve high levels of maturity in people management have a higher likelihood of implementing effective software engineering processes.

✓ A) True

B) False

3 INCORRECT

The first step in project planning is to

A) determine the budget.

B) select a team organizational model.

C) determine the project constraints.

✓ D) establish the objectives and scope.

4 INCORRECT

Process framework activities are populated with

A) milestones

B) work products

C) QA points

✓ D) All of the above

5 INCORRECT

Project management is less important for modern software development since most projects are successful and completed on time.

A) True

B) ✓ False

6 INCORRECT

Which of the following is not generally considered a player in the software process?

A) customers

B) end-users

C) project managers

D) ✓ sales people

7 INCORRECT

The best person to hire as a project team leader is the most competent software engineering practitioner available.

A) True

B) ✓ False

8 CORRECT

The best project team organizational model to use when tackling extremely complex problems is the

A) closed paradigm

B) ✓ open paradigm

C) random paradigm

D) synchronous paradigm

9 INCORRECT

Which factors should be considered in choosing the organizational structure for a software team? (Select all that apply)

A) degree of communication desired

B) predicted size of the resulting program

C) rigidity of the delivery date

D) size of the project budget

✓ E) a, b, and c

10 CORRECT

One of the best ways to avoid frustration during the software development process is to

✓ A) give team members more control over process and technical decisions.

B) give team members less control over process and technical decisions.

C) hide bad news from the project team members until things improve.

D) reward programmers based on their productivity.

11 INCORRECT

Small agile teams have no place in modern software development.

A) True

✓ B) False

12 INCORRECT

Which of these software characteristics is not a factor contributing to project coordination difficulties?

A) interoperability

✓ B) performance

C) scale

D) uncertainty

13 INCORRECT

Which of these software characteristics are used to determine the scope of a software project?

A) context, lines of code, function

B) context, function, communication requirements

✓ C) information objectives, function, performance

D) communications requirements, performance, information objectives

14 INCORRECT

The major areas of problem decomposition during the project scoping activity are the

A) customer workflow

B) functionality to be delivered

B)
process used to deliver functionality

C)
software process model

D)
both b and c

E)

15 CORRECT

Product and process decomposition often occurs simultaneously as the project plan evolves.

✓ A) True

B) False

16 INCORRECT

When can selected common process framework activities be omitted during process decomposition?

A) when the project is extremely small in size

B) any time the software is mission critical

C) rapid prototyping does not require their use

✓ D) never—the activities should always occur

17 INCORRECT

How does a software project manager need to act to minimize the risk of software failure?

A) double the project team size

B) request a large budget

C) start on the right foot

D) track progress

✓ E) both c and d

18 INCORRECT

The W^5HH principle contains which of the following questions?

A) Why is the system being developed?

B) What will be done by whom?

C) Where are they organizationally located?

How much of each resource is required?

D)

✓ E) a, c, and d

19 INCORRECT

Which of these are critical practices for performance-based project management?

A) assessing product usability

B) defect tracking against quality targets

C) empirical cost estimation

D) formal risk management

✓ E) b, c, and d

Lecture-22

The correct answer for each question is indicated by a ✓.

1 INCORRECT

Which of these are valid reasons for measuring software processes, products, and resources?

A) to characterize them

B) to evaluate them

C) to price them

D) to improve them

✓ E) a, b, and d

2 INCORRECT

The terms *measure, measurement,* and *metric* all share the same definition according to the IEEE Standard Glossary of Software Engineering Terms.

A) True

✓ B) False

3 INCORRECT

Process indicators enable a software project manager to

A) assess the status of an on-going project

B) track potential risks

C) adjust work flow or tasks

✓ D) all of the above

4 INCORRECT

Public metrics are used

A) to evaluate the performance of software development teams.

B) to appraise the performance of individual team members.

C) to make strategic changes to the software process.

D) to make tactical changes during a software project

✓ E) both c and d

5 CORRECT

Which of the following items are not measured by software project metrics?

A) inputs

✓ B) markets

C) outputs

D) results

6 INCORRECT

Software quality and functionality must be measured indirectly.

✓ A) True

B) False

7 INCORRECT

Which of following are advantages of using LOC (lines of code) as a size-oriented metric?

✓ A) LOC is easily computed.

B) LOC is a language dependent measure.

C) LOC is a language independent measure.

D) LOC can be computed before a design is completed.

8 INCORRECT

Which of the following are advantages of using function points (FP) as a measure of the functionality delivered by a software application?

A) FP is easily computed.

B) FP is a language dependent measure.

C) FP is a language independent measure.

D) FP can be computed before a design is completed.

✓ E) both c and d

9 INCORRECT

There is no need to reconcile LOC and FP measures since each is meaningful in its own right as a project measure.

A) True

✓ B) False

10 CORRECT

Object-oriented project measures may be combined with historical project data to provide metrics that aid in project estimation.

✓ A) True

B) False

11 CORRECT

Use-case oriented metrics are computed directly from UML diagrams and they are often used as normalization measures.

A) True

✓ B) False

12 INCORRECT

Which of the following is not a measure that can be collected from a Web application project?

✓ A) Customization index

B) Number of dynamic objects

C) Number of internal page links

D) Number of static web pages

13 INCORRECT

Which of the following software quality factors is most likely to be affected by radical changes to computing architectures?

A) operation

transition
B)

revision
C)

✓ none of the above
D)

14 INCORRECT

Which of the following provide useful measures of software quality?

correctness, business relevance, integrity, usability
A)

reliability, maintainability, integrity, sales
B)

correctness, maintainability, size, satisfaction
C)

✓ correctness, maintainability, integrity, usability
D)

15 CORRECT

A software quality metric that can be used at both the process and project levels is defect removal efficiency (DRE).

✓ True
A)

False
B)

16 INCORRECT

Why is it important to measure the process of software engineering and software it produces?

It is really not necessary unless the project is extremely complex.
A)

To determine costs and allow a profit margin to be set.
B)

✓ To determine whether a software group is improving or not.
C)

To make software engineering more like other engineering processes.
D)

17 INCORRECT

To be an effective aid in process improvement the baseline data used must be:

based on reasonable guestimates from past projects
A)

measured consistently across projects
B)

drawn from similar projects
C)

based only on successful projects
D)

✓ both b and c
E)

18
INCORRECT

Baseline data must be collected in an on-going manner and cannot be computed by formal study of historical project data.

A) True


B) False

19
INCORRECT

Small software organizations are not likely to see any economic return from establishing software metrics program.

A) True


B) False

20
CORRECT

The software metrics chosen by an organization are driven by the business or technical goals an organization wishes to accomplish.


A) True

B) False