UNIT-XIV

WEB TECH AND SOFTWARE ENGINEERING

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NOTES

WEB TECHNOLOGY

OBJECTIVE QUESTIONS

CHAPTER 1

1. State TRUE/FALSE

   (i) Web application development is the creation of application programs that reside on remote servers and are delivered to the user's device over the Internet.

   (ii) Web application development tools include Bootstrap, jQuery, Ruby on Rails and JS.

   (a) TRUE, TRUE

   (b) FALSE , FALSE

   (c) TRUE, FALSE

   (d) FALSE, TRUE

2. Which of the following statement(s) is/are Correct for MVC Architecture

   (i) Model is responsible for maintaining application data and business logic.

   (ii) View is a user interface of the application, which displays the data.

   (iii) Controller handles user's requests and renders appropriate View with Model data.

   (a) (i), (ii) and (iii)   (b) (i) and (ii)

   (c) (i) and (iii)   (d) (ii) and (iii)

3. Which is not a front end technology?

   (a) MySQL   (b) CSS

   (c) JavaScript   (d) HTML

4. Which of the following statement(s) is/are Correct?

   (i) The Client-Server architecture is based on a shared memory method.

   (ii) Client-Server architecture is scalable

   (a) Only (ii)   (b) None of the above

   (c) Only (i)   (d) (i) and (ii)

5. Which of the following role of web service architecture utilizes an existing web service by opening a network connection and sending an XML request?

   (a) Service Registry   (b) None of the above.

   (c) Service Provider   (d) Service Requestor

6. What is the abbreviation of MVC in context of web technologies

   (a) Model View Controller

   (b) Main View Controller

   (c) Model View Components

   (d) Main Virtual Controller

7. What is the abbreviation if WSDL?

   (a) Web Services Definition Language

   (b) Web Services Description Language

   (c) Web Scripting Description Language

   (d) Web Scripting Definition Language

8. A web service takes the help of

   (i) XML to tag the data

   (ii) SOAP to transfer a message

   (iii) WSDL to describe the availability of service.

   (a) (i) and (ii)   (b) (ii) and (iii)

   (c) (i),(ii) and (iii)   (d) (i) and (iii)

9. What UDDI stands for?

   (a) Universal Description, Discovery, and Integration

   (b) Uniform Description, Discovery, and Integration

   (c) Uniform Discovery, Description, and Integration

   (d) Uniform Discovery, Delivery, and Integration

10. Which is not a type of XML web services?

    (a) RSS   (b) PDF

    (c) WSDL   (d) SOAP

11. _____ is a server application or appliance that acts as an intermediary for requests from clients seeking resources from servers that provide those resources. A _____ is to store, process and deliver web pages to clients.

    (a) Proxy Server,Web Server

    (b) Proxy Server, Proxy Server

    (c) Web Server, Web Server

    (d) Web Server, Proxy Server

12. State TRUE/FALSE?

    (i) Web Services can convert your existing applications into Web-applications.

    (ii) A web service takes the help of XML to transfer a message.

    (iii) A web service takes the help of WSDL to describe the availability of service.

    (iv) XML Messaging is responsible for encoding messages in a common XML format so that messages can be understood at either end.

    (a) FALSE, FALSE, TRUE, TRUE

    (b) FALSE, TRUE, FALSE, TRUE

    (c) TRUE, FALSE, TRUE, TRUE

    (d) TRUE, FALSE, TRUE, FALSE

13. What is the correct syntax of the declaration which defines the XML version?

    (a) < ?xml version="1.0"? >

    (b) < ?xml version="1.0" / >

    (c) < xml version="1.0" >

    (d) < xml version="1.0" / >

14. A_____ is usually an internal-facing proxy used as a front-end to control and protect access to a server on a private network. A reverse proxy commonly also performs tasks such as load-balancing, authentication, decryption and caching.

    (a) Anonymous proxy (b) Reverse proxy

    (c) Transparent proxy (d) Open Proxy

15. The < ! DOCTYPE > declaration in HTML5 is

    (a) < ! DOCTYPE html: >

    (b) < ! DOCTYPE html >

    (c) < ! DOCTYPE html! >

    (d) < ! DOCTYPE html; >

16. Consider the following statements respect to JavaScript

    (i) A variable is created using the keyword

    (ii) JavaScript is untyped language

    Which of the above are true?

    (a) Neither (i) nor (ii) (b) Only (i)

    (c) Only (ii)   (d) Both (i) and (ii)

17. Which of the following statement(s) is/are correct?

    (i) The <canvas> tag in the HTML is used to create graphics such as boxes, circles using JavaScript.

    (ii) The HTML tags are not case-sensitive

    (iii) HTML5 Support media element like video and audio.

    (a) (i) and (iii)   (b) (i), (ii) and (iii)

    (c) (ii) and (iii)   (d) (i) and (ii)

18. Given below are several usages of the anchor tag in HTML.

    (i) < A href="http://w3c.org/test.html" >

    (ii) < A href="/HTML/test.html"> Test < /A >

    (iii) < A href="test.html">Test < /A >

    (iv) < A href="test.html#top">Test < /A >

    Which of the above are valid?

    (a) (i),(ii),(iii) and (iv)

    (b) (ii), (iii) and (iv) only

    (c) (i) and (ii) only

    (d) (i), (ii) and (iii) only

19. Which of the following is not a type of Cascading Style Sheet(CSS)?

    (a) Inline CSS

    (b) Internal or Embedded CSS

    (c) External CSS

    (d) Combined CSS

20. _____ attribute used in < table > elements sets the width, in pixels, between the edge of a cell and its individual cells.

(a) cellspacing   (b) cellpadding

(c) colspacing   (d) edgespacing

21. Which of the following does not belong to the list tags category?

(a) < dl >   (b) < xl >

(c) < ul >   (d) < ol >

22. Which of the following is correct about Web form 2.0 in HTML5?

(i) Web Forms 2.0 is an extension to the forms features found in HTML4.

(ii) Form elements and attributes in HTML5 provide a greater degree of semantic mark-up than HTML4.

(iii) Form elements and attributes in HTML5 remove a great deal of the need for tedious scripting and styling that was required in HTML4.

(a) Only (iii)   (b) (i) and (ii)

(c) (i), (ii) and (iii)   (d) (ii) and (iii)

23. Which of the following methods in JavaScript will display a window having a dialog box with a specific message, along with an OK and a CANCEL button as options?

(a) alert()   (b) confirm()

(c) request()   (d) prompt()

24. The _____ language was originally designed as the Transformation Language for Style Sheet facility.

(a) XPath   (b) XSTL

(c) XML   (d) XQuery

25. _____ is a JavaScript library that implements the most common user interface elements and interactions like sliders, accordions, tabs, and so on

(a) JavaScript   (b) JCL

(c) JQuery UI   (d) VTS

26. State TRUE/FALSE

(i) < applet > element in HTML5 is replaced with an < object >

(ii) Semantic element < nav > defines navigation links

(iii) midi extension file format is an audio format.

(iv) < pattern > is for checking a regular expression in input fields of HTML forms.

(a) (i)-FALSE, (ii)-TRUE, (iii)-TRUE, (iv)-FALSE

(b) (i)-TRUE, (ii)-FALSE, (iii)-FALSE, (iv)-TRUE

(c) (i)-TRUE, (ii)-TRUE, (iii)-TRUE, (iv)-TRUE

(d) (i)-FALSE, (ii)-FALSE, (iii)-FALSE, (iv)-FALSE

27. Which of the following is correct about custom attributes in HTML5?

(i) A custom data attribute starts with data- and would be named based on your requirement.

(ii) You would be able to get the values of these attributes using JavaScript APIs or CSS in a similar way as you get for standard attributes.

(a) Only (ii)   (b) None of the above

(c) Both (i) and (ii)   (d) Only (i)

28. _____ tag defines an HTML table.

(a) <table>   (b) <tr>

(c) <th>   (d) <div>

29. Which of the following is not the product of Mozilla?

(a) Firefox web browser

(b) Thunderbird e-mail client

(c) Gecko layout engine

(d) Bing

30. Which of the following tags is used to add music or video into your web page?

(a) embed   (b) add

(c) sound   (d) insert

31. _____ perform internet protocol blocking to protect networks from unauthorized access.

(a) Firewalls   (b) Proxy Servers

(c) Routers   (d) VoIP

32. Which of the following statements is NOT correct about HTPP cookies?

(a) Cookies can be used to track the browsing pattern of a user at a particular site

(b) A cookie is a piece of code that has the potential to compromise the security of an Internet user

(c) A cookie gains entry to the user's work area through an HTTP header

(d) A cookie has an expiry date and time.

33. Amoung the given options, who is making the web standards?

(a) Google

(b) The World Wide Web Consortium

(c) Microsoft

(d) Mozilla

34. Which of the following information is included in <meta> tag?

(a) Page Expiry   (b) Page Author

(c) Page Description (d) All of the above

35. The component in MVC is responsible for

(a) User interface

(b) Security of the system

(c) Business logic and domain objects

(d) Translating between user interface actions/events andoperations on the domain objects.

36. Consider the following syntax:

<MAP NAME = 'World Map'>

<Area Coords = '0, 0, 100, 200' HREF = "homepage.html">

</MAP>

When would you use the above syntax?

(a) When defining an image map

(b) When referring back to homepage.html

(c) When referring to World Map

(d) When embedding a graphic in JavaScript.

37. Which is the valid option to add button in HTML

(a) <btn> Click button </btn>

(b) Click button

(c) <button> Click button </button>

(d) <click btn> Click button </click btn>

38. _____ refers to computing technologies in which the hardware and software components are distributed across a network.

(a) Client and Server

(b) User and System

(c) User and file Server

(d) User and database server

39. Which is a client program that acts as an interface between user and World Wide Web.

(a) Web browser   (b) HTML

(c) URL   (d) OS

40. Which of the following HTML web storage objects stores data with no expiration date?

(a) Window.sessionStorage

(b) Window.localStorage

(c) Window.tempStorage

(d) Window.currentStorage

41. Which of the following browser components is used to display requested content?

(a) Browser engine   (b) User Interface

(c) UI backend   (d) Rendering engine

42. Which of the following statements is/are FALSE?

I. XML overcomes the limitations in HTML to support a structured way of organizing content.

II. XML specification is not case sensitive while HTML specification is case sensitive.

III. XML supports user defined tags while HTML uses pre-defined tags.

IV. XML tags need not be closed while HTML tags must be closed.

(a) II only   (b) I only

(c) II and IV only   (d) III and IV only

43. What is the correct CSS code for adding a background color?

(a) <background> yellow </background>

(b) <body bg = "red">

(c) <body bg-color: "red">

(d) <body style = "background-color : red">

44. Which is the correct HTML element for the largest heading:

(a) <head>   (b) <h2>

(c) <h1>   (d) <h6>

☐ ☐ ☐

Answer Key

1. Ans. (a)	21. **Ans. (b)**
2. **Ans. (a)**	22. *Ans. (c)*
3. **Ans. (c)**	23. *Ans. (b)*
4. **Ans. (a)**	24. *Ans. (b)*
5. **Ans. (d)**	

1.   Ans. (a)

2.   **Ans. (a)**

3.   **Ans. (c)**

4.   **Ans. (a)**

5.   **Ans. (d)**

6.   **Ans. (a)**

7.   **Ans. (b)**

8.   **Ans. (c)**

9.   **Ans. (a)**

10.   **Ans. (a)**

11.   **Ans. (a)**

12.   **Ans. (3)**

13.   **Ans. (1)**

14.   **Ans. (b)**

15.   **Ans. (b)**

16.   **Ans. (b)**

(i) **True:** Because we are using the "var" keyword.

(ii) **False:** Untyped means the operation of dividing integer by string would result in treating the first four bytes of strings as integer. This is because untyped take place directly on bits, there are no types to observe. Javascript is a typed language.

17.   **Ans. (b)**

18.   **Ans. (a)**

The "a" is known as an anchor and it acts as a mini URL. So if you had a page called test.html, I could actually link directly to your anchor like this:

https : //example.com/test.html #top and it would load your page and scroll to your anchor. All syntaxes are valid for creating hyperlinks.

19.   **Ans. (d)**

20.   **Ans. (c)**

Colspacing attribute used in < table > elements sets the width, in pixels, between the edge of a cell and its individual cells.

21.   **Ans. (b)**

22.   *Ans. (c)*

23.   *Ans. (b)*

24.   *Ans. (b)*

XSLT (eXtensible Stylesheet Language Transformations) is the recommended style sheet language for XML.

XSLT is far more sophisticated than CSS. With XSLT you can add/remove elements and attributes to or from the output file. You can also rearrange and sort elements, perform tests and make decisions about which elements to hide and display, and a lot more.

XSLT uses XPath to find information in an XML document.

25.   **Ans. (c)**

jQuery UI is a curated set of user interface interactions, effects, widgets, and themes built on top of the jQuery JavaScript Library. Whether you're building highly interactive web applications or you just need to add a date picker to a form control, jQuery UI is the perfect choice.

26.   **Ans. (c)**

(i) TRUE: < applet > element in HTML5 is replaced with an < object >

(ii) TRUE: Semantic element <nav> defines navigation links. The nav element is for marking up the navigation links or other constructs (eg a search form) that will take you to different pages of the current site, or different areas of the current page. Header contains a section of headings. Section element is used to make sections in documents. The aside tag defines a block of content that is related to the main content around it, but not central to the flow of it.

(iii) TRUE: .midi extension file format is an audio format.

(iv) TRUE: < pattern > is for checking a regular expression in input fields of HTML forms.

27. Ans. (c)

28. Ans. (a)

The <table> tag defines an HTML table and it consists of the <table> element and one or more <tr>, <th> and <td> elements.

Elements	Description
<tr>	defines a table row
<th>	defines a table header (bold letter)
<td>	defines a table cell
<div>	defines a division or a section in an HTML document

29. Ans. (d)

- Mozilla Firefox (or simply Firefox) is a free and open-source web browser developed by the MOzilla Foundation and its subsidiary, Mozilla Corporation.

- Product of Mozilla

  1. Thunderbird = An email and news clinet

  2. Mozilla Firefox - A web browser

  3. Gecko - Browser Engine

- Bing is a web search engine owned and operated by Mircosoft.

30. Ans. (a)

We can add video or sound to our web site by using the special HTML tag called <embed>. This tag causes the browser itself ot include controls for the multimedia automatically provided browser supports <embed> tag and given media type.

31. Ans. (a)

Firewalls perform internet protocol blocking to protect networks from unauthorized access. A proxy server is a server that acts as an intermediary for requests from clients seeking resources from other servers. A router is a networking device that forwards data packets between computr networks.

VoIP (VOice over IP) s the transmission of voice and multimedia content over internet protocol (IP) networks.

32. Ans. (b)

33. Ans. (b)

- The World Wide Web Consortium (W3C) is the main international standards organization for the World Wide Web (abbreviated WWW oir W3)

- Web Standards are made by W3C.

- Google, Microsoft, Mizilla have their own web browser like Google Chrome, Internet Explorer and Firefox respectively but they do not make the web standards.

34. Ans. (d)

The HTML <meta> tag is used to provide metadata about the HTML document which includes information about pge expiry, page author, list of keywords, page description etc.

Meta tags are snippets of text that describe a page's content; the meta tags don't appear on the page itself, but only in the page's code.

35. Ans. (c)

36. Ans. (a)

The <map> tag is used to define a client-side image-map.

The <area> element is used as a child of a <map> element to define clickable region on an image map.

37. Ans. (c)

38. Ans. (a)

39. Ans. (a)

40. Ans. (b)

41. Ans. (d)

The components of web browser perform the following:

User Interface : This includes the address bar, back/forward button, bookmarking menu etc. Every part of the browser display except the window where you see the requested page.

Browser Engine : It marshals actions between the UI and the rendering engine.

Rendering Engine : It is responsible for displaying requested content. For example if the requested content is HTML, the rendering engine parses

HTML and CSS, and displays the parsed content on the screen.

UI Backend : It is used for drawing basic widgets like combo boxes and windows. This backend exposes a generic interface that is not platform specific. Underneath it uses operating system user interface methods.

Data Storage : This is a persistence layer. The browser may need to save all sorts of data locally, such as cookies Browsers also support storage mechanisms such as localStorage, Indexed DB, WebSQL and FileSystem.

42. Ans. (c)

43. Ans. (d)

CSS syntax:

<body style="background-color : colour_name">

Colour (options)	Example	Description
ccolour _ name	Red	Name of colour
hex _ number	#ff0000	Hexadecimal colour code
Rgb _ number	rgb(255, 36, 0)	rgb colour code

44. Ans. (c)

• The <h1>, <h2>, <h3>, <h4>, <h5> and <h6> elements are used to create headings in descending order of importance.

•   <h1> → largest heading size

•   <h6> → east heading size

Example : <h1>heading1</h1>

❑❑❑

1. Which of the following provides a quantitative measure of the logical complexity of a program?

   (a) Testing

   (b) Requirement analysis

   (c) SDLC

   (d) Cyclomatic property

2. Which of the following statement is false about software design process?

   (a) The design process should not suffer from tunnel vision

   (b) The design should be traceable to the analysis model

   (c) The design should reinvent the wheel

   (d) The design should exhibit uniformity and integration

3. In business process engineering which type of architecture provides a set of attributes that define some aspect, quality, characteristic?

   (a) Data architecture

   (b) Applications architecture

   (c) Technology infrastructure

   (d) All of the above

4. Which is not the parameter that needs to be estimated in project planning activity?

   (a) Project cost   (b)   Project name

   (c) Project duration   (d)   Project size

5. A teasibility study is a key part of _____.

   (a) preliminary investigation

   (b) validation

   (c) verification

   (d) fact finding

6. Which of the following describes how the software communicates within itself?

   (a) component design

   (b) interface design

   (c) data design

   (d) architectural design

7. What is the correct order in which a software project manager estimates various project parameters while using COCOMO?

   (a) Cost, effort, duration size

   (b) Cost, duration, effort, size

   (c) Size, effort, duration, cost

   (d) Size, cost, effort, duration

8. In Rapid Application Development (RAD), which phase is used for adding, modifying, deleting, or retrieving a data object?

   (a) Business modeling   (b)   Data modeling
   (c) Process modeling   (d)   Testing

9. According to IEEE standard glossary of software engineering terminology, if developer made call to a wrong function in a development activity then it is term as _____.

   (a) Failure   (b)   Error
   (c) Mistake   (d)   None of these

10. If the requirement is "IRCTC application must support 250 users simultaneouly making reservations at any hour of the day." then what type of requirement it is?

   (a) Functional requirement

   (b) Non function requirement

   (c) Implementation requirement

   (d) None of these

11. The waterfall model can work reasonably well if the following assumptions is/are satisfied.

   I. Requirements are precisely known in advance.

   II. An inexperienced team handling the project since it will cost less.

   (a) Only I   (b) Only II

   (c) Both I and II   (d) None of these

12. In software process models, the prototyping model includes.

   (a) Requirement gathering, build mock-up, customer test drivers mock-up

   (b) Business modeling, data modeling, process modeling, application generation, testing.

   (c) requirement gathering, design, coding, testing, implementation

   (d) All of the above

13. What is/are true about the testing phase?

   I. After testing phase, it is guarantee that a program is error free.

   II. In testing, programs are test exhaustively with respect to each value.

   (a) Only I   (b) Only II

   (c) Both I and II   (d) None of these

14. Which of the following is expression is true if V1 is verification techniques, E is error detection techniques and V2 is validation techniques?

   (a) $V1 = E + V2$ (b) $V2 = E + V1$

   (c) $V2 = V1 - E$ (d) $V1 = E - V2$

15. Which of the following is a type of system testing?

   I. Recovery Testing

   II. Security Testing

   III. Stress Testing

   IV. Performance testing

   (a) I   (b) I and II

   (c) II, III and IV   (d) I, II, III and IV

16. Software Reuse is

   (a) The process of analysing software with the objective of recovering its design and specification.

   (b) The process of existing software artifacts and knowledge to build new software.

   (c) Concerned with reimplementing legacy system to make then more maintainable

   (d) The process of analyzing software to create a representation of a higher level of abstraction and breaking software down into its parts to see how it works.

17. What is the process of determining whether the output of one phase of software development conforms to that of its previous phase?

   (a) Authentication   (b) Validation

   (c) Nonrepudiation   (d) Verification

18. What is true about the 3rd phase of spiral model?

   (a) Determine the objective

   (b) Analysis of risk

   (c) Fix problem and produce a result

   (d) Plan the next iteration

19. What is true about the 3rd phase of spiral model?

   (a) Determine the objective

   (b) Analysis of risk

   (c) Fix problem and produce a result

   (d) Plan the next iteration

20. What is measure of the relative functional strength of module?

   (a) Cohesion   (b) Coupling

   (c) Unser interface   (d) Process

21. Which of the following represent the model of the proposed system?

   (a) Physical DFD   (b) Logical DFD

   (c) Fact finding   (d) Data dictionary

22. Software Risk estimation involves following two tasks :

   (a) Risk development and risk impact

   (b) Risk magnitude and risk impact

   (c) Risk maintenance and risk impact

   (d) risk probability and risk impact

23. UML depicts information systems as a collection of

    (a) Entities   (b) Processes
    (c) Information   (d) Objects

24. A good software design need

    (a) Low cohesion and low coupling
    (b) High cohesion and High coupling
    (c) High cohesion and low coupling
    (d) Low cohesion and high coupling

25. Which one of the following non-functional quality attributes is not highly affected by the architecture of the software?

    (a) Usability   (b) Portability
    (c) Reliability   (d) Performance

26. Software Maintenance includes

    (i) Error corrections
    (ii) Enhancements of capabilities
    (iii) Deletion of obsolete capabilities

    (a) (ii) and (iii)   (b) (i) and (iii)
    (c) (i), (ii) and (iii) (d) (i) and (ii)

27. Software safety is quality assurance activity that focuses on hazards that

    (a) may result from user input errors.
    (b) prevent profitable marketing of the final product.
    (c) may cause an entire system to fail.
    (d) affect the reliability of a software component.

28. The ISO quality assurance standard that applies to software Engineering is

    (a) ISO 9002 : 2001   (b) ISO 9001 : 2000
    (c) ISO 9000 : 2004   (d) ISO 9003 : 2004

29. Which of the following are external qualities of a software product?

    (a) Correctness, reliability, robustness, efficiency, usability.
    (b) Robustness, efficiency, reliability, maintainability, reusability.
    (c) Portability, interoperability, maintainability, reusability.
    (d) Maintainability, reusability, portability, efficiency, correctness.

30. _____ system can be any organized combination of people, hardware, software, communications networks and data resources that collects, transforms and disseminates information in an organization.

    (a) Vertical   (b) Integrated
    (c) Information   (d) Horizontal

31. Which of the following statement(s) is/are TRUE?

    (i) The process of transforming a model into source code is known as Forward engineering

    (ii) The process of generating analysis and design documents is known as Reverse engineering

    (a) Only (I)
    (b) Only (ii)
    (c) (i) and (ii)
    (d) Neither (i) nor (ii)

32. RAD stands for

    (a) Relative Application Development
    (b) Rapid Application Development
    (c) Rapid Application Document
    (d) None of the mentioned

33. Which one of the following is not a phase of Prototyping Model?

    (a) Quick Design
    (b) Coding
    (c) Prototype Refinement
    (d) Engineer Product

34. Which one of the following is not a phase of Prototyping Model?

    (a) Quick Design
    (b) Coding
    (c) Prototype Refinement
    (d) Engineer Product

35. Which model can be selected if user is involved in all the phases of SDLC?

    (a) Waterfall Model
    (b) Prototyping Model
    (c) RAD Model
    (d) Both Prototyping Model & RAD Model

36. RAD Model has

   (a) 2 phases   (b) 3 phase

   (c) 5 phases   (d) 6 phases

37. The spiral model was originally proposed by
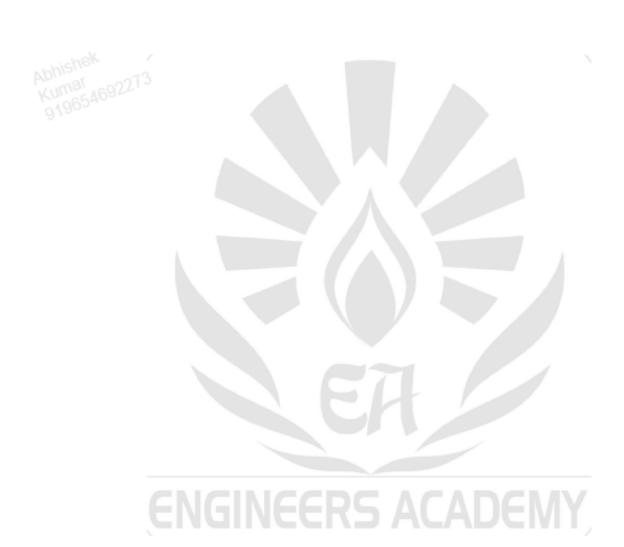
   (a) IBM   (b) Barry Boehm

   (c) Pressman   (d) Royce

❑❑❑

ANSWER KEY

1.   Ans. (d)

2.   Ans. (c)

1. A good designer should consider alternative approaches, judging each based on the requirements of the problem, the resources available to do the job, and the design concepts.

2. The design should be traceable to the analysis model because a single element of the design model often traces to multile requirements, it is necessary to have a means for tracking how requirements have been satisfied by the design model.

3. The design should not reinvent the wheel. Systems are constructed using a set of design patterns, many of which have likely been encounteed before. These patterns should always be chosen as an laternative to reinvention. Time is short and resources are limited. Design time should be invested in representing truly new ideas and integrating those patterns that already exist.

4. A design is uniform if it appears that one person developed the entire thing. Rules of style and format should be defined for a design team before design work begins. A design is integrated if care is taken in defining interfaces between design components.

3.   Ans. (a)

The data architecture provides a framework for the information needs of a business or business function. The individual building blocks of the architecture are the data objects that are used by the business. A data object contains a set of attributes that define some aspect, quality, characteristics, or descriptor of the data that are being described.

4.   Ans. (b)

- Estimation of various project parameters is an important project planning activity.

- The different parameters of a project that need to be estimated include - project size, the effort required to complete the project, project duration and cost.

- Accurate estimation of these parameters is important since these not only help in quoting an appropriate project cost to the customer but also form the basis for resource planning and scheduling.

5.   Ans. (a)

The preliminary investigation is a critical step because the outcome will affect the entire development process. A key part of the preliminary investigation is a feasibility study theat reviews anticipated costs and benefits and recommends a course of action based on operational, technical, economic, and time factors.

6.   Ans. (b)

Software requirements manifested by the data, functional and behavioral models feed the design task. Using a design method, the design task produces a data design, an architectural design, an interface design, and a component design.

The data design transforms the information domain model created during analysis into the data structures that will be required to implement the software.

The architectural design defines the relationship between major structural elements of the software, the design patterns that can be used to achieve the requirements.

The interface design describes how the software communicates within itself, with systems that interoperate with it, and with humans who use it.

The component-level design transforms structural elements of the software architecture into a procedural description of software components.

7.   Ans. (c)

8.   **Ans. (c)**

- The RAD model is a high-speed adaptation of the linear sequential model in which rapid development is achieved by using component-based construction. The RAD approach encompasses the following phases.

- The RAD approach encompasses the following phases.

- Business modeling, Data modeling, process modeling, application generation, testing.

- **Process Modeling :** The data objects defined in the data modeling phase are transformed to achieve the information flow necessary to implement a business function. Processing descriptions are created for adding, modifying, deleting, or retrieving a data object.

9.   **Ans. (b)**

- An error is the result of a mistake committed by a developer in any of the development activities, among the extremenly large variety of errors that can exist in a program.

- A call made to a wrong function is an example of an error.

- A mistake is essentially any programmer action that later shows up as an incorrect result during program execcution. Divide by zero is a take by programmer.

10.   **Ans. (b)**

11.   **Ans. (a)**

The following assumptions if satisfied, waterfall model will work well:

- The requirements are precisely known in advance.

- The requirements include no unresolved high-risk items.

- The requirements won't change much during development.

- The team has previous experience with similar projects so that they know what's involved in building the application.

- There's enough time to do everything sequentially.

12.   **Ans. (a)**

The prototyping paradigm begins with requirements gathering. Developer and customer meet and define the overall objectives for the software, identify whatever requirements are known, and outline areas where further definition is mandatory and implement a quick design.

The quick design focuses on a representation of those aspects of the software that will be visible to the customer/user. The quick design leads to the construction of a prototype.

The prototype is evaluated by the customer/user and used to refine requirements for the software to be developed. Iteration occurs as the prototype is tuned to satisfy the needs of the customer, while at the same time enabling the developer to better understand what needs to be done.

13.   **Ans. (d)**

- The aim of program testing is to help realize, identify all defects in a program, however, in practice, even after satisfactory completion of the testing phase, it is not possible to guarantee that a program is error free.

- This is because the input data domain of most programs is very large, and it is not practical to test the program exhaustively with respect to each value that the input can assume.

- Consider a function taking a floating-point number as argument, if a tester takes 1 second to type in a value, then even a million testers would not be able to exhaustively test it after trying for a million number of years.

14.   **Ans. (d)**

- The verification and the validation techniques are two different types of bug filters.

- To achieve high product reliability in a cost-effective manner, a develoment team needs to perform both verification and validation activities.

- The activities involved in these two types of bug detection techniques together are called the 'V and V' activites.

- Based on the above discussions, it can conclude that:

Error detection techniques = Verification techniques + Validation techniques

$$E = V1 + V2$$

$$\therefore \quad V1 = E - V2$$

15. Ans. (d)

System testing is a series of different tests whose primary purpose is to fully exercise the computer-based system.

Although each test has a different purpose, all work to verify that system elements have been properly integrated and perform allocated functions. Types of a system testing:

- Recovery testing
- Security testing
- Stress testing
- Performance testing

16. Ans. (b)

Concept : Software reuse is the use of existing software after doing some changes in the existing software.

17. Ans. (d)

- Verification and validation techniques are very similar since both these techniques are designed to help remove errors in a software.

- In spite of the apparent similarity between their objectives, the underlying principles of these two bug detection techniques and their applicability are very different.

- Verification is the process of determining whether the output of one phase of software development conforms to that of its previous phase.

- Validation is the process of determining whether a fully developed software conforms to its requirements specification.

18. Ans. (c)

19. Ans. (c),

20. Ans. (a)

Cohesion is a qualitative indication of the degree to which a module focuses on just one thing.

Cohesion is a natural extension of the information hiding concept.

A cohesive module performs a single task within a software procedure, requiring little interaction with procedures being performed in other parts of a program.

Coupling is a qualitative indication of the degree to which a module is connected to other modules and to the outside world.

21. Ans. (b)

There are two types of DFD - Physical and Logical DFD.

Physical DFD.

The data flow diagrams which represent the model of the current system (manual or computerized), are known as physical DFD. These diagrams are drawn, when the analyst studies the current working system in detail.

22. Ans. (d)

23. Ans. (d)

24. Ans. (c)

- Cohesion refers to the degree to which the elements of a module/class belong together, it is suggested that the related code should be close to each other, so we should strive for high cohesion and bind all related code together as close as possible. It has to do with the elements within the module/class.

- Coupling refers to the degree to which the different modules/classes depend on each other, it is suggested that all modules should be independent as far as possible, that's why low coupling. It has to do with the elements among different modules/classes.

25. Ans. (a)

Performance: Performance refers to the response of the system while performing a certain actions in certain period of time. A software can perform better only if it have well structured,easy to maintain architecture.

Reliability: Reliability refers to the ability of a software to continue to operate in the presence of a predefined condition. A software can be reliable if it's architecture is good enough to work well in inappropriate situations.

Usability: Usability refers to the ease in using the software. The usability is not related to the architecture of the software no matter how complex or simple the software architecture is but the main thing is should be easy to use by the user.

Portability: It refers to the ability to port the software to different platforms or systems. The architecture of a software should be in a way that it can be used at different platforms.

Other than usability all given attributes are somewhere affected by the architecture of the software.

26. **Ans. (c)**

27. **Ans. (c)**

- **Software safety:** software quality assurance activity that focuses on the identification and assessment of potential hazards that may affect software negatively and cause an entire system to fail.

- Modellingg and analysis process is conducted as part of software safety.

- Initially, hazards are identified and categorized by criticality and risk.

28. **Ans. (b)**

- Software quality assurance (SQA) consists of a means of monitoring the software engineering processes and methods used to ensure quality.

- The ISO quality assurance standard that applies to software Engineering is ISO 9001 : 2000.

29. **Ans. (a)**

30. **Ans. (c)**

Information system can be any organized combination of people, hardware, software, communications networks and data resources that collects, transforms and disseminates information in an organization. It provides information and support needed for effective decision making by the manager.

31. **Ans. (c)**

32. **Ans. (b)**

33. **Ans. (b)**

A prototyping model generates only a working model of a system.

34. **Ans. (b)**

A prototyping model generates only a working model of a system.

35. **Ans. (c)**

36. **Ans. (c)**

RAD Model consists of five phases namely:Business modeling,Data modeling,Process modeling,Application generation and Testing & Turnover.

37. **Ans. (b)**

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