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Computer Science Grade 12 — Chapter 1

Computer Systems

by Public Library

Independent practice MCQs from the supplied Class 12 Computer Science notes pack. Total: 50 questions.

A. Important / Main Topics

1. Usability refers to:

(A) The degree to which a device or system can be used easily and efficiently
(B) The measures taken to protect data from unauthorized access
(C) The design of systems for people with disabilities
(D) The speed at which a system processes data

Correct Answer: A

Explanation: Usability is the degree to which a device or system can be used by specific users to achieve specified goals with effectiveness, efficiency, and satisfaction.

2. Which of the following is a key aspect of usability?

(A) Encryption
(B) Effectiveness
(C) Availability
(D) Authentication

Correct Answer: B

Explanation: The three key aspects of usability are effectiveness, efficiency, and satisfaction.

3. Which principle of usability states that the design should be as straightforward as possible?

(A) Consistency
(B) Feedback
(C) Simplicity
(D) Learnability

Correct Answer: C

Explanation: Simplicity means removing unnecessary complexity and focusing on core functionalities.

4. The principle of usability that ensures similar design across different parts of a system is called:

(A) Feedback
(B) Error prevention
(C) Accessibility
(D) Consistency

Correct Answer: D

Explanation: Consistency means interfaces maintain a consistent design across different parts of the system.

5. Which security objective ensures that sensitive information is accessible only to authorized users?

(A) Confidentiality
(B) Integrity
(C) Availability
(D) Usability

Correct Answer: A

Explanation: Confidentiality ensures that sensitive information is accessible only to authorized users.

6. The CIA triad consists of:

(A) Confidentiality, Integrity, Accessibility
(B) Confidentiality, Integrity, Availability
(C) Control, Integrity, Availability
(D) Confidentiality, Interaction, Availability

Correct Answer: B

Explanation: The CIA triad stands for Confidentiality, Integrity, and Availability.

7. Which of the following is a key aspect of accessibility?

(A) Encryption
(B) Authentication
(C) Inclusivity
(D) Efficiency

Correct Answer: C

Explanation: The key aspects of accessibility are inclusivity, adaptability, and compliance.

8. Perceivability in accessibility means that:

(A) Users can navigate the interface using a keyboard
(B) Users can customize the system
(C) Users can comply with legal requirements
(D) Users can perceive the information and user interface components

Correct Answer: D

Explanation: Perceivability means all users must be able to perceive the information and UI components, regardless of sensory abilities.

9. Which of the following is a solution for visual impairments?

(A) Screen readers
(B) Closed captions
(C) Voice recognition
(D) On-screen keyboards

Correct Answer: A

Explanation: Screen readers convert text and visual elements into spoken words or braille for users with visual impairments.

10. Human-Computer Interaction (HCI) is best defined as:

(A) The study of computer hardware
(B) A multidisciplinary field studying how people interact with computers
(C) A programming language
(D) A type of database

Correct Answer: B

Explanation: HCI is a multidisciplinary field that studies how people interact with computers, digital devices, and software applications.

11. Which of the following is NOT a key element of HCI?

(A) Users
(B) Tasks
(C) Budget
(D) Environment

Correct Answer: C

Explanation: The four key elements of HCI are Users, Tasks, Interface, and Environment.

12. Which component of usability refers to how easy it is for new users to accomplish basic tasks the first time they encounter the system?

(A) Efficiency
(B) Memorability
(C) Satisfaction
(D) Learnability

Correct Answer: D

Explanation: Learnability refers to how easy it is for new users to accomplish basic tasks the first time they encounter the system.

13. Which type of usability testing involves a facilitator guiding users through tasks?

(A) Moderated testing
(B) Unmoderated testing
(C) A/B testing
(D) Quantitative testing

Correct Answer: A

Explanation: In moderated testing, a facilitator or moderator is present to guide users through tasks.

14. Which of the following is a common usability issue?

(A) Strong encryption
(B) Complex interfaces
(C) High processing speed
(D) Large storage capacity

Correct Answer: B

Explanation: Complex interfaces are one of the four common usability issues described in the textbook.

15. A trade-off between usability and security means:

(A) Both always improve together
(B) They are unrelated
(C) Improving one can degrade the other
(D) They are always in conflict

Correct Answer: C

Explanation: Enhancing security can degrade usability, and enhancing usability can degrade security.

16. A mobile banking app is designed so that a new user can quickly learn to check their balance and transfer funds. This primarily demonstrates which component of usability?

(A) Efficiency
(B) Memorability
(C) Error handling
(D) Learnability

Correct Answer: D

Explanation: Learnability is about how easily new users can accomplish tasks the first time they encounter the system.

17. An e-commerce website provides a visual confirmation when an item is added to the shopping cart. This is an example of which usability principle?

(A) Feedback
(B) Simplicity
(C) Consistency
(D) Error prevention

Correct Answer: A

Explanation: Feedback — this correctly answers the question.

18. Microsoft Word prompting a user to save changes before closing a document is an example of:

(A) Simplicity
(B) Error prevention
(C) Consistency
(D) Learnability

Correct Answer: B

Explanation: Error prevention involves designing the system so errors are less likely to happen, such as prompting to save work before closing.

19. Which type of usability testing focuses on understanding the user's experience, thoughts, and feelings?

(A) Quantitative testing

(B) A/B testing
(C) Qualitative testing
(D) Remote testing

Correct Answer: C

Explanation: Qualitative testing — this correctly answers the question.

20. An online retailer randomly shows two versions of its homepage to different users to see which one leads to more sales. This is an example of:

(A) Moderated testing
(B) Unmoderated testing
(C) Qualitative testing
(D) A/B testing

Correct Answer: D

Explanation: A/B testing compares two versions of a system to see which one performs better.

21. A website has small text and low-contrast colors that are difficult for visually impaired users to read. This is an example of:

(A) Lack of accessibility
(B) Complex interface
(C) Inconsistent navigation
(D) Poor error message

Correct Answer: A

Explanation: Lack of accessibility means the system is not designed to accommodate users with disabilities.

22. Which principle of usability is demonstrated when Microsoft Office uses similar menus across Word, Excel, and PowerPoint?

(A) Simplicity
(B) Consistency
(C) Feedback
(D) Error prevention

Correct Answer: B

Explanation: Consistency — this correctly answers the question.

23. A company encrypts credit card numbers before storing them in a database. This primarily ensures:

(A) Integrity
(B) Availability
(C) Confidentiality
(D) Usability

Correct Answer: C

Explanation: Encryption ensures that even if a hacker gains access, they cannot read the information without the decryption key, maintaining confidentiality.

24. A digital signature on an email ensures that the content has not been altered after it is sent. This primarily ensures:

(A) Confidentiality
(B) Availability
(C) Accessibility
(D) Integrity

Correct Answer: D

Explanation: Integrity ensures that data remains unaltered during storage, transmission, or processing. A digital signature verifies that the content has not been tampered with.

25. A business uses multiple servers so that if one fails, another takes over immediately. This primarily ensures:

(A) Availability

(B) Confidentiality
(C) Integrity
(D) Usability

Correct Answer: A

Explanation: Availability ensures that systems and data are accessible and usable when needed, even during or after a disruption.

B. Less Important / Secondary Topics

26. Which of the following best describes the Target Data Breach of 2013?

(A) Hackers accessed Target's network through a third-party vendor using stolen credentials
(B) Target's servers were physically stolen
(C) Target's employees leaked customer data
(D) Target's website was flooded with traffic

Correct Answer: A

Explanation: Hackers accessed Target's network through a third-party vendor using stolen credentials — this correctly answers the question.

27. In the context of HCI, the "interface" refers to:

(A) The physical device used
(B) The point of interaction between the user and the system
(C) The software programming language
(D) The hardware configuration

Correct Answer: B

Explanation: The interface is the point of interaction between the user and the system, through which users interact via various input and output mechanisms.

28. Which element of HCI includes factors such as lighting, noise, and whether the use is solitary or collaborative?

(A) Users
(B) Tasks
(C) Environment
(D) Interface

Correct Answer: C

Explanation: The environment includes the physical and social context of the interaction, such as lighting, noise, and whether the use is solitary or collaborative.

29. A user who hasn't used a banking app for a month can still remember how to pay a bill. This demonstrates which component of usability?

(A) Learnability
(B) Efficiency
(C) Error handling
(D) Memorability

Correct Answer: D

Explanation: Memorability refers to how easily users can remember how to use the system after a period of not using it.

30. An educational platform includes captions and transcripts for all video content. This primarily improves accessibility for:

(A) Users with hearing impairments
(B) Users with visual impairments
(C) Users with motor impairments
(D) Users with cognitive impairments

Correct Answer: A

Explanation: Captions and transcripts provide textual representations of audio content, helping users who are deaf or hard of hearing.

31. A TV remote designed with large buttons and high-contrast colors is an example of:

(A) Simplicity
(B) Accessibility
(C) Consistency
(D) Error prevention

Correct Answer: B

Explanation: Large buttons and high-contrast colors assist users with vision or dexterity issues, making the remote more accessible.

32. Which of the following is a common usability issue where navigation elements change from one section to another?

(A) Complex interface
(B) Poor error message
(C) Inconsistent navigation
(D) Lack of accessibility

Correct Answer: C

Explanation: Inconsistent navigation occurs when navigation structure or elements change from one.

33. An online form displays "Error 150: Invalid input" when a user enters an incorrect date format. This is an example of:

(A) Complex interface
(B) Inconsistent navigation
(C) Lack of accessibility
(D) Poor error message

Correct Answer: D

Explanation: Poor error messages are unclear, overly technical, or provide little guidance on how to resolve the issue.

34. Which of the following is a recommendation for cybersecurity measures that focuses on protecting users' personal data?

(A) Privacy
(B) Efficiency
(C) Cost
(D) Ethics

Correct Answer: A

Explanation: Privacy protection ensures that users' personal data is handled responsibly and securely.

35. Using a password manager like LastPass or Bitwarden is an example of which recommendation for cybersecurity measures?

(A) Cost
(B) Efficiency
(C) Privacy
(D) Ethics

Correct Answer: B

Explanation: Efficiency — this correctly answers the question.

36. A company implements multi-factor authentication (MFA) for its banking app. While this improves security, users complain about the extra time required to log in. Which trade-off does this best illustrate?

(A) Confidentiality vs. integrity
(B) Access control vs. availability
(C) Authentication complexity vs. usability
(D) Encryption vs. performance

Correct Answer: C

Explanation: Authentication complexity vs. usability — this correctly answers the question.

37. A hospital restricts access to patient records so that only authorized doctors can view them. However, doctors frequently need to request permission from IT to access files, delaying patient care. This best illustrates the trade-off between:

(A) Confidentiality and integrity
(B) Availability and confidentiality
(C) Encryption and performance
(D) Access controls and usability

Correct Answer: D

Explanation: Access controls protect sensitive data by restricting permissions, but they can hinder usability when users frequently encounter permission issues.

38. A system is designed with a simple interface, clear feedback, and error prevention. Which component of usability is most likely to be indirectly improved by all these principles?

(A) Learnability
(B) Efficiency
(C) Memorability
(D) Satisfaction

Correct Answer: A

Explanation: A simple interface with clear feedback and error prevention is easier for new users to learn, indirectly improving learnability.

39. A company stores customer data in the cloud. The data is encrypted, and access is restricted to authorized employees. However, a phishing attack tricks an employee into revealing their login credentials. Which security objective is most directly compromised?

(A) Integrity
(B) Confidentiality
(C) Availability
(D) Usability

Correct Answer: B

Explanation: The phishing attack compromises confidentiality because unauthorized access to sensitive data is gained through stolen credentials.

40. A university uses a biometric fingerprint system for attendance. Students with worn fingerprints cannot register their attendance. Which principle of accessibility is most directly violated?

(A) Perceivability
(B) Inclusivity
(C) Operability
(D) Compliance

Correct Answer: C

Explanation: Operability ensures that users can navigate and use the interface regardless of their physical abilities. Worn fingerprints affect the ability to operate the system.

41. A website provides alt text for all images and captions for all videos. This primarily addresses which two principles of accessibility?

(A) Inclusivity and compliance
(B) Adaptability and compliance
(C) Perceivability and inclusivity
(D) Perceivability and operability

Correct Answer: D

Explanation: Alt text and captions address perceivability (users can perceive information) and operability (users can navigate and use the interface).

42. A company uses a password manager, enables MFA, and provides user-friendly privacy settings. Which combination of cybersecurity recommendations does this best represent?

(A) Efficiency, privacy, and ethics
(B) Cost, privacy, and ethics
(C) Efficiency, cost, and privacy
(D) Privacy, ethics, and cost

Correct Answer: A

Explanation: Password managers improve efficiency, MFA protects privacy, and user-friendly privacy settings are an ethical consideration.

43. A school wants to ensure that students with visual impairments can use its online learning platform. Which combination of features would be most effective?

(A) Screen readers and keyboard navigation
(B) Screen readers, high-contrast modes, and zoom functions
(C) High-contrast modes and voice recognition
(D) Closed captions and transcripts

Correct Answer: B

Explanation: Screen readers, high-contrast modes, and zoom functions — this correctly answers the question.

44. A company wants to protect its data during transmission over the internet. It uses encryption and access controls. Which additional recommendation for cybersecurity measures would best complement these measures?

(A) Cost
(B) Efficiency
(C) Privacy
(D) Ethics

Correct Answer: C

Explanation: Privacy ensures that data is protected during transmission and that users' personal information is handled responsibly.

45. A user with a motor impairment cannot use a mouse. Which accessibility solution would be most appropriate?

(A) Screen reader
(B) High-contrast mode
(C) Closed captions
(D) Voice recognition software

Correct Answer: D

Explanation: Voice recognition software enables users to control their device using voice commands, which is sui.

46. A company wants to improve both usability and security. It simplifies its interface while adding MFA and encryption. Which statement best describes this approach?

(A) Usability and security can be balanced with thoughtful design
(B) Usability and security are always in conflict, so one must be sacrificed
(C) Security should always take priority over usability
(D) Usability should always take priority over security

Correct Answer: A

Explanation: The textbook emphasizes that designers must balance usability and security to create systems that protect users without compromising their experience.

47. A website uses a consistent navigation menu across all pages, provides clear error messages, and includes alt text for images. Which combination of usability principles and accessibility features does this best represent?

(A) Consistency, poor error messages, and perceivability
(B) Consistency, clear error messages, and perceivability
(C) Simplicity, clear error messages, and operability

(D) Consistency, clear error messages, and operability

Correct Answer: B

Explanation: Consistency, clear error messages, and perceivability — this correctly answers the question.

48. A company implements a system where users can customize text size and color contrast. This primarily addresses which aspect of accessibility?

(A) Perceivability
(B) Operability
(C) Adaptability
(D) Compliance

Correct Answer: C

Explanation: Adaptability allows users to customize the way they interact with the system to suit their needs.

49. A school wants to ensure that its online platform is accessible to students with hearing impairments. Which combination of features would be most effective?

(A) Screen readers and zoom functions
(B) High-contrast modes and keyboard navigation
(C) Voice recognition and on-screen keyboards
(D) Closed captions, transcripts, and sign language interpretation

Correct Answer: D

Explanation: Closed captions, transcripts, and sign language interpretation — this correctly answers the question.

50. A company uses auto-save, password managers, and cloud-based security services. Which combination of cybersecurity recommendations does this best represent?

(A) Efficiency, cost, and privacy
(B) Efficiency, cost, and ethics
(C) Privacy, ethics, and cost
(D) Efficiency, privacy, and ethics

Correct Answer: A

Explanation: Efficiency, cost, and privacy — this correctly answers the question.