Midterm Exam Sample Solutions

1 Multiple Choice

Each question has FOUR possible answers. Circle the letter of the best answer for each question.

[1]

1. Which of the following fields is not an influence on HCI?

   (a) ergonomics

   (b) cognitive psychology

   (c) computer science

   (d) all of the above *are* an influence on HCI

   ⇒ (d) all of these fields influence HCI

[1]

2. Scripting (the ability to record and play back programmable sequences of actions) is an example of:

   (a) speaking the user's language

   (b) allowing the user model to grow

   (c) the "recognition rather than recall" principle

   (d) a mode in the user interface design

   ⇒ (b) allowing the user model to grow; in this case it allows the user to create their own higher-level actions

[1]

3. An icon of a file folder, which users can drop files on in order to move them into the folder, is an example of which of the following:

   (a) the "recognition rather than recall" principle

   (b) direct manipulation

   (c) a metaphor

   (d) all of the above

   ⇒ (d) all of the above

[1]

4. You drag a folder to make a copy of its contents. An animation appears on the screen, showing files moving from one folder to another. This is an example of which of the following:

   (a) visibility

(b) mapping

(c) an affordance

(d) feedback

⇒ (d) (see Week 1 lectures)

5. Your new sound card is packaged in a plastic anti-static bag. The bag is sealed with a yellow sticker with a written warning not to expose the card to static electricity. The sticker is an example of: **[1]**

(a) perceptual constraint

(b) cultural constraint

(c) physical constraint

(d) logical constraint

⇒ there are two possible answers: (b) (the colour yellow is used to indicate a warning); or (c) (the sticker prevents you from opening the package until you see the label)

6. Which of the following statements is *false*? **[1]**

(a) Norman's logical constraints are one way to implement Nielsen's principle of error prevention.

(b) The help and documentation called for by Nielsen's usability principle form part of Norman's definition of the system image.

(c) Norman's principle of feedback is one way to implement Nielsen's principle of "recognition rather than recall."

(d) All of the above statements are *true*.

⇒ (c) feedback happens after an action is performed; recognition helps the user discover/select appropriate actions

7. Which of the following statements is *true*? **[1]**

(a) Violating Norman's feedback principle interferes with the fourth stage of Norman's Seven Stages of Action.

(b) There is no ethical way to collect data about people without their informed consent.

(c) Structured interviews are less likely to miss salient details than unstructured ones.

(d) All of the above statements are *false*.

⇒ (d) all of these contradict statements or examples given in class and/or the lecture notes

[1] 8. Which of the following gestures makes use of a quasi-mode?

(a) Selecting one of the commands (draw, spray paint, etc.) in the tool palette of a paint program.

(b) Using the Ctrl-V shortcut to paste text.

(c) Clicking a link in a web browser.

(d) All of the above make use of quasi-modes.

⇒ (b) Ctrl modifies the meaning of the V key only as long as it is held

[1] 9. Unlike traditional observation, guided observation:

(a) sets strict guidelines for session activities

(b) reduces error introduced by the experimenter

(c) sets strict guidelines for session lengths

(d) includes some interaction with participants

⇒ (d) (defined in lecture notes)

10. The *Num Lock* key found on many keyboards, which enables the user to use the number functions of the numeric keypad rather than the cursor
[1] control functions, indicates which of the following *features* is present:

(a) a mode

(b) a quasi-mode

(c) a physical constraint

(d) a logical constraint

⇒ (a) since it sets the state used to interpret numeric keypad gestures

11. As we have used the terms in this course, what is the relationship between
[1] *tasks, actions,* and *goals*?

(a) a task is composed of goals and actions to accomplish those goals

(b) an action reifies a task into a goal

(c) a goal is composed of a set of actions that accomplish a task

(d) none of the above

⇒ the intended answer is (d), but (c) is somewhat ambiguous and will also be accepted—goals are abstract objectives; tasks are objectives that must be fulfilled to achieve a goal; actions are specific concrete gestures required to achieve a task.

12. The *Num Lock* key found on many keyboards, which enables the user to use the number functions of the numeric keypad rather than the cursor control functions, indicates which of the following *features* is present: **[1]**

    (a) a mode

    (b) a quasi-mode

    (c) a physical constraint

    (d) a logical constraint

    ⇒ the answer is still (a)

2 Short Answer

For each question, fill in the provided blanks with your answer.

1. List two problems that user interface design has in common with traditional software engineering: **[2]**

   ⇒ These three were given in class: requirements are a moving target; users often do not understand their own requirements; the design possibilities change with the technology.

2. How does user interface design fit within the broader field of human computer interaction (HCI)? **[1]**

   ⇒ User interface design is the application of HCI to real systems.

3. Consider the following statement: *In order to improve an interface design, it is necessary to consult with the primary users of the system.* Is this statement true or false? Explain your answer. **[1]**

   ⇒ False. Once can often improve a design simply by applying design principles. However, the best designs do take the user into account, and direct communication is an effective way to learn about their particular characteristics.

4. Give an example of how modern web browsers do (or could) anticipate the user's needs. **[1]**

⇒ Here are two ways: completing the address bar with recently visited sites as the user types, and downloading the links from the current page before they are actually requested.

5. Name something that you could say or ask while interviewing someone in their home to help establish rapport. **[1]**

   ⇒ You might ask them about a picture or other keepsake displayed in their home. Any reasonable answer is acceptable here.

6. Explain why the following statement is false: *Unlike the user model, the design model is complete and accurate.* **[1]**

   ⇒ Although the designer normally has a better understanding of the system than that inferable from the system image, software systems are so complex that he or she will almost certainly not have *perfect* knowledge of the system.

7. List two of Norman's interaction design principles that are often violated by command line interfaces in practice (such as a Unix shell). For each explain how it is violated. **[2]**

   ⇒ Some possible answers:
   feedback (many commands do not display anything unless there is an error; the user doesn't know if the command succeeded or silently failed due to a bug)
   consistency (often the same option letter means different things for different commands)
   visibility (the list of accepted commands is not shown)

8. Name and define two properties of an effective metaphor: **[2]**

   ⇒ They must be *meaningful* (user must be familiar with them and be able to recognize them) and they must *match the user's expectations* (behave the way the metaphor would be expected to behave).

3 Design Problems

Use the space provided to create the design process artifact required by each question.

1. An elevator panel will require buttons for four floors (parking, main floor, second and third floor), door open, door close, stop, and activate emergency intercom. Propose a design for these buttons. Draw them in a single row in the space below. Use the psychological principles (gestalt laws) of *similarity* and *proximity* to help the user map intentions to actions. **[3]**

If you wish, you *may* provide a brief *design rationale* for your solution:

⇒ *Similarity:* buttons with the same shape and colour perform similar functions. *Proximity:* buttons with a similar function are closer together than buttons with dissimilar functions so that they form visual groups; the door control buttons are closer to the stop button than the floor selection buttons because they form a subgroup of secondary controls.

2. You are designing a web site to allow online rental of DVDs and audio-books. Create a table of relevant user qualities (characteristics) and the design requirements they imply. **Note:** the number of marks is not related to the number of table entries expected. **[4]**

⇒ *Some possible entries:*

Characteristic	**Expected Values**	**Requirement**
Age	16+	restrict access to movies by age range
Knowledge	Casual–Movie Buff	provide a variety of ways to classify movies; e.g., causal: based on movies the user has already seen/buff: by director
Culture (Language)	Mostly English, but varies	user needs to know subtitles/language tracks available

3. Write an *essential use case* for the task of *renting a new item* from the above online company. Assume that the user is already a member and that they pay a flat monthly fee for rentals (that is, payment is not part of the task). **[4]**

⇒ An essential use case is an abstract description of a task that is independent of *how* it is carried out. (For example, it does not include specific techniques or UI components.)

An answer might look something like this:

Rent a New Item

User's Purpose	**System Responsibility**
Identify account	Validate that account is correct
Browse/Search for desired item(s)	Display matching results
Select desired item(s)	Display selected item(s)
Verify the selection	Update items rented by user/available to rent
	Request shipment of item to user

This is how the text book presents essential use cases. The lecture notes present a point-form list that simply states what happens at each step. Either format is acceptable here.

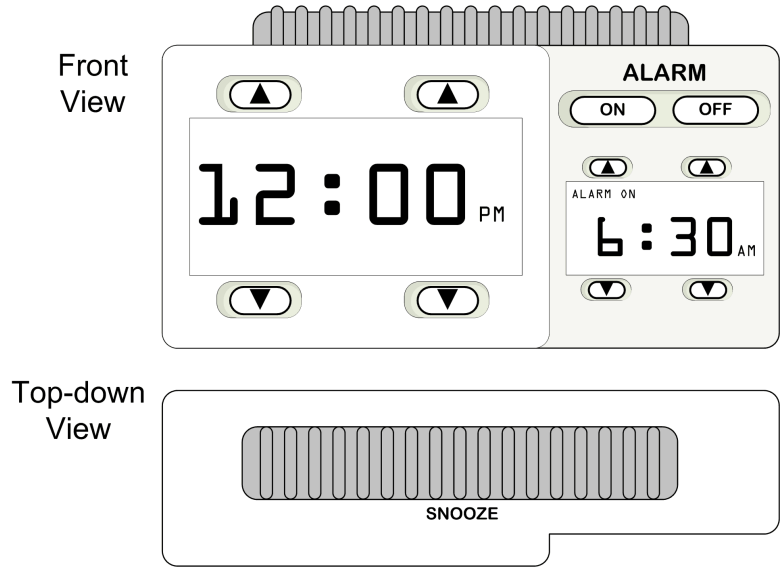
4. In the space provided, write a *scenario* based on the essential use case you created in the the previous question (you will have to first imagine a concrete use case): **[4]**

   ⇒ Scenarios provide concrete illustrations of a task based on an actual (usually fictional) user.

   A possible answer based on the above essential use case might be:

   Sarah is a store manager at a high-volume discount store who likes to watch movies on the weekend to help her relax. It is Monday, and she wants to rent a movie before she heads to work to ensure it arrives in the mail before this weekend. Going to the main page for the rental site, she clicks on the "Members" button and then enters her user credentials. A welcome page verifies that she entered her credentials correctly and tells her she currently has 2 items rented and can rent up to 2 more. It also lists some popular movies that are currently available. Since she is a casual user, she does not have a list of movie titles in mind. As she is in a hurry, she decides to let the system recommend something to her. She clicks on the Romantic Comedy category, which displays a list of the most popular movies of that type currently available. She then clicks on the Recommend button, and a list of romantic comedies (with box art, title, rating, one-line plot summaries, year, and language(s)) rented by other users who also rented movies she previously rented is listed. She browses the list, and chooses a title that catches her attention. A page with additional details (larger picture, list of principle actors, the director, more plot details, and user reviews) appears. She sees that the film stars one of her favourite actors, and on scanning the first user review sees that it is very positive. Deciding to rent the DVD based on this information, she clicks the Rent button, then verifies her selection on the following verification page. Noting the time, she hurriedly turns off the display, grabs her coffee, and heads off to work.

5. In the space below, sketch an interface design for an alarm clock. You must be able to set the current time, set the alarm time, turn the alarm on or off, and snooze (temporarily turn an active alarm off to rest a few more minutes). **There are no other functions or features.** **[8]**



6. In point form, explain the four most important or interesting features of your design. For each feature, list a design principle (or user need), then explain how the feature implements the principle. **[4]**

⇒ Some of the features of this design:

Mapping: Arrow directions and locations indicate clearly what effect the time and alarm time setting buttons will produce.

Safety/error prevention: Recessed time set buttons help prevent accidental setting changes.

Know the user: A large, overhead snooze button can be easily found and pressed by a drowsy user without opening their eyes; at the same time, the alarm off button is hard to press, reducing the likelihood of turning the alarm off and then falling back asleep.

Modeless: Every control maps to exactly one action (note in particular that the alarm on/off actions are controlled by two separate buttons).

Human Computer Interaction HCI Sheet-1-SWE-Level 4-2021-Dr. Hatem

1) What is an important advantage of command-line interfaces over graphical user interfaces?
   - ❑ The mental load for the user is low (recall over recognition).
   - ❑ **The user is not distracted by an abundance of menus, icons, toolbars, etc.**
   - ❑ They work well for repetitive jobs like payroll processing or billing.
   - ❑ Complex operations can be performed more efficiently, e.g. through command languages.
2) Why should modal dialog boxes be used with care?
   - ❑ **They are very disruptive and prevent users from continuing their task.**
   - ❑ They have high resource requirements on the computer system.
   - ❑ They frequently lead to application or system crashes.
   - ❑ They are difficult to program because they have to work across applications.
3) Under which circumstances is the use of CAPITAL LETTERS appropriate in screen layout and design?
   - ❑ Never, because text in capital letters is more difficult to read.
   - ❑ To better distinguish text from the numbers when text and numbers are mixed.
   - ❑ **To emphasize important items like field names, titles, or main categories.**
   - ❑ It should be used as often as possible because it reduces the number of bits required for the representation of characters.
4) The automatic code generation feature of user interface development tools can be very useful, but it can also be a disadvantage. What is the potential problem with automatic code generation?
   - ❑ In the long run, it might put software developers out of work.
   - ❑ **The generated code can be inefficient and unnecessarily complex.**
   - ❑ Automatically generated code is very difficult to port across different platforms.
   - ❑ The generated code typically contains more errors than code written by programmers.
5) Out of the following user interface prototypes, which one has the lowest fidelity?
   - ❑ A simulation of the interactive user interface, e.g. implemented in Visual Basic.
   - ❑ A storyboard presentation.
   - ❑ **A textual description in a few paragraphs.**
   - ❑ A series of drawings prepared with a graphics package.
6) In which phase of the UI design cycle should evaluation be performed?
   - ❑ Throughout the design cycle.
   - ❑ After the elicitation of user requirements.
   - ❑ **After prototyping.**
   - ❑ After implementation
7) Which usability testing method can be applied before the actual design of the product or system begins?

- ❑ Contextual inquiry.
- ❑ **Focus groups.**
- ❑ Heuristic evaluation.
- ❑ Co-discovery.

8) What is an important purpose of developing prototypes for a user interface?
   - ❑ Developers use them to get familiarized with the tools they use.
   - ❑ **Users can give early feedback, which can be more easily integrated into the design process.**
   - ❑ Prototypes can be used for marketing purposes long before the actual product is available.
   - ❑ This way the user interface design can be completely separated from the development of the underlying system.

9) Although humans often rely on spoken natural language to communicate with each other, spoken language is not used very heavily in human-computer interfaces. What is an important reason for that?
   - ❑ The bandwidth of the auditory channel is more limited than that of the visual channel.
   - ❑ Computers would have to understand many different languages and dialects.
   - ❑ **It requires speech recognition by computers, which as of now is too error-prone and consumes too many resources.**
   - ❑ Speech output by computers sounds rather unnatural.

10) Why have menus become a practically indispensable part of current user interfaces?
   - ❑ **They allow an efficient formulation of complex input commands.**
   - ❑ They minimize cursor movements, thus making input actions more efficient.
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A) Icons B)Windows C)Screens D)None

2. A sign that was caused by the thing to which it refers.

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6. Which of the following statements is false?
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13- How many basic steps are there in interaction design process?

a. 4 **b. 5** c. 6 d. 3

14- What does HTA stand for?

a. Hierarchical task analysis b. HTML Application c. Human Tissue Authority d. Human task analysis

15- In virtual reality which of the senses cannot currently be portrayed? Select one:

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Human Computer Interaction HCI 2019- Dr. Hatem

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Spring 2018/2019

Answer all the following questions

Question one (MCQ) (Answer 12 points only)

1- Each question has FOUR possible answers. Circle the letter of the best answer for each question.

1. Which of the following fields is not an influence on HCI?
(a) Ergonomics
(b) Cognitive psychology
(c) Computer science
(d) All of the above are an influence on HCI

2. Scripting (the ability to record and play back programmable sequences of actions) is an example of:
(a) Speaking the user's language
(b) Allowing the user model to grow
(c) The recognition rather than recall_ principle
(d) A mode in the user interface design

3. An icon of a file folder, which users can drop _les on in order to move them into the folder, is an example of which of the following: [
(a) The recognition rather than recall principle
(b) Direct manipulation
(c) A metaphor
(d) all of the above

4. You drag a folder to make a copy of its contents. An animation appears on the screen, showing _les moving from one folder to another. This is an example of which of the following:
(a) Visibility
(b) Mapping
(c) An affordance
(d) Feedback

5. Your new sound card is packaged in a plastic anti-static bag. The bag is sealed with a yellow sticker with a written warning not to expose the card to static electricity. The sticker is an example of:
(a) Perceptual constraint
(b) Cultural constraint

(c) Physical constraint
(d) Logical constraint

6. Which of the following statements is false?
(a) Norman's logical constraints are one way to implement Nielsen's principle of error prevention.
(b) The help and documentation called for by Nielsen's usability principle form part of Norman's definition of the system image.
(c) Norman's principle of feedback is one way to implement Nielsen's principle of recognition rather than recall.
(d) All of the above statements are true.

7. Which of the following statements is true?
(a) Violating Norman's feedback principle interferes with the fourth stage of Norman's Seven Stages of Action.
(b) There is no ethical way to collect data about people without their informed consent.
(c) Structured interviews are less likely to miss salient details than un-structured ones.
(d) All of the above statements are false.

8. Which of the following gestures makes use of a quasi-mode?
(a) Selecting one of the commands (draw, spray paint, etc.) in the tool palette of a paint program.
(b) Using the Ctrl-V shortcut to paste text.
(c) Clicking a link in a web browser.
(d) All of the above make use of quasi-modes.

9. Unlike traditional observation, guided observation:
(a) Sets strict guidelines for session activities
(b) Reduces error introduced by the experimenter
(c) Sets strict guidelines for session lengths
(d) Includes some interaction with participants

10. The Num Lock key found on many keyboards, which enables the user to use the number functions of the numeric keypad rather than the cursor control functions, indicates which of the following features is present:
(a) A mode
(b) A quasi-mode
(c) A physical constraint

(d) A logical constraint

11. As we have used the terms in this course, what is the relationship between tasks, actions, and goals?
(a) A task is composed of goals and actions to accomplish those goals
(b) An action reifies a task into a goal
(c) A goal is composed of a set of actions that accomplish a task
(d) None of the above

12. The Num Lock key found on many keyboards, which enables the user to use the number functions of the numeric keypad rather than the cursor control functions, indicates which of the following features is present:
(a) A mode
(b) A quasi-mode
(c) A physical constraint
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13-What is an important advantage of command-line interfaces over graphical user interfaces?
(a) The mental load for the user is low (recall over recognition).
(b) The user is not distracted by an abundance of menus, icons, toolbars, etc.
(c) They work well for repetitive jobs like payroll processing or billing.
(d) Complex operations can be performed more efficiently, e.g. through command languages.

14- Why should modal dialog boxes be used with care?
(a) They are very disruptive and prevent users from continuing their task.
(b) They have high resource requirements on the computer system.
(c) They frequently lead to application or system crashes.
(d) They are difficult to program because they have to work across applications.

15- Under which circumstances is the use of CAPITAL LETTERS appropriate in screen layout and design?
(a) Never, because text in capital letters is more difficult to read.
(b) To better distinguish text from the numbers when text and numbers are mixed.
(c) To emphasize important items like field names, titles, or main categories.
(d) It should be used as often as possible because it reduces the number of bits required for the representation of character

Question 1: Choose The Correct Answer (only 40 are required): (10 Marks)

1. Identify from among the following the attribute of usability.
   A .Learnability B. Usefulness C. Generalizability D. Subjective satisfaction

2. Unlike traditional observation, guided observation ……..
   A. set strict guidelines for session activities

   B. reduces error introduced by the experimenter

   C. sets strict guidelines for session length

   D. includes some interaction with participants

3. A persona in the context of goal-oriented interaction design …….
   A.is used to role-play through an interface design

   B.is a real person

   C. represents a particular type of user

   D. should represent an average user

4. Which of the following fields is not an influence on Human Computer Interaction (HCI)? A. Ergonomics
   B. Cognitive psychology

   C. Computer science

   D. All of the above are an influence on HCI

5. The name of the document should be shown on the application's ……..
   A. menu bar B. title bar C. tool bar D. status bar

6. When software is poorly designed, the penalties are:
    a. More time to learn how things work

    b. More time to get things done

    c. More errors in getting things done

    d. Potential users will buy your competitor's product

    e. All of the above

7. the most important factor leading to the development of usable software is:
    a. An understanding of user needs
    b. The right development team
    c. In-house design standards

    d. Early usability testing

    e. Management buy-in

8. Post-test questionnaires (conducted after a usability test) are particularly useful for measuring
    a) Safety.
    b) Efficiency.
    c) Learnability.
    d) User satisfaction.
9. A pluralistic walkthrough
    a) Is usually conducted at the end of the development process.
    b) Is often conducted with low-fidelity designs.
    c) Requires having several alternate designs.
    d) Requires a fully functional prototype.
10. Providing accelerators (e.g. keyboard shortcuts) mostly addresses
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    b) Efficiency.
    c) Learnability.

d) Attitude (or likeability).

11.A method that does not require human participants serving as test users is the

a) Usability test.
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c) Rubin's comparison test.
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(d) All of the above statements are true.

16. The process of forming general concept definitions from examples of concepts to be learned.

(a) Deduction (b) Abduction (c) Induction

(d) Conjunction

17. A user-centered approach is characterized by ALL these elements EXCEPT for which one of the following?

a. Considers users' tasks and goals from inception through development

b. Uses a linear lifecycle model to clearly delineate tasks

c. Is based on empirical measurements of user performance

d. Is developed via an iterative design process

18. You drag a folder to make a copy of its contents. An animation appears on the screen, showing files moving from one folder to another. This is an example of which of the following:

(a) Visibility

(b) Mapping

(c) An affordance

(d) Feedback

19. Which of the following best describes what a conceptual model is used for?

a. Outlines the possible applications and prerequisite concepts for a product

b. Provides a diagram or prototype that embodies the design concept

c. Describes an abstraction or metaphor of the user interface

d. Defines the mappings between concepts and affinity diagrams

20. Which of the following is NOT a lifecycle model of software development?

a. Waterfall

b. Spiral

c. Star

d. Cluster

21. A central problem with the waterfall model is that: (multiple choice)

a. It does NOT allow for iterative design with user feedback

b. It does NOT allow for changes in requirements that ensue during development

c. It does NOT consider software designers' work practices

d. A and b only

e. All of the above

22. Which of the following is NOT true of the usability engineering lifecycle model?

a. In this model, usability goals are integrated into all phases of design

b. Both qualitative and quantitative goals are considered during design

c. Requirements analysis is one of the two major phases of the model

d. The practices that correspond to this model are very cost effective

e. All of the above

23. Which of the following is NOT a primary reason for doing requirements analysis?

a. To translate prototypes into requirements for subsequent development

b. To ensure the clarity and specificity of communication about needs

c. To attempt to avoid future usability problems and user frustration

d. To reduce the time and costs involved in developing a system

e. To evaluate the functions of a system during testing

24. The very best kind of "Help" is:

a. Online tutorials

b. Online documentation

c. Reference manuals

d. A "Help" desk

e. Needing none at all

25. What should you never do during usability testing?

a. Assure the participants they are not the subject of the test

b. Keep the testing situation as ambiguous as possible

c. Use participants having different levels of computer experience

d. Ask the participants to talk about what they are thinking

e. Start out by showing the participants how the software works

26. What is the principal interaction mode for a Microsoft Kinect?

A. Haptic Interface
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D. All of the above

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A. Closed questions
B. Hypothetical questions
C. Questions with mutually exclusive options
D. Open-ended questions

29. Why is prototyping essential?

A. To get quick feedback on the product/application
B. None of the above
C. Experiment with multiple alternatives
D. It saves money and effort

30- What is the benefit of good design?

(a) Positive effect or performance (b) success (c) Both a & b (d) None

31. The basic principles underlying user-centric software design are:

a. Relatively new

b. Based on trial and error

c. More art than science

d. Nonexistent, good design is just applied common sense

e. Derived from empirical data regarding human performance characteristics

32. After determining what you want your application to do, the best next step in software development is to:

a. Establish standards for detail design

b. Perform task analysis

c. Allocate system functions

d. Get to know your target users

e. Define high-level architecture

33. User-centric software development requires the talents and participation of:

a. Programmers

b. User Interface Designers

c. Graphic Artists

d. Instructional Materials Developers

e. All of the above

34. The single best predictor of a software application's usability is its:

a. Consistency

b. Predictability

c. Self-evidency

d. Efficiency

e. Effectiveness

35. In the earliest stages of interface design,the best strategy for the use of color is:

a. Use color to focus attention and show relationships

b. Use only a few colors

c. Avoid saturated reds and blues

d. All of the above

e. Use no color at all

36. To satisfy novice and expert users, the best strategy for label and field alignment is:

a. Right align labels and left align fields

b. Left align both fields and labels

c. Left align labels and stagger fields

d. None of the above

e. Any of the above, depending on circumstances

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40. The most important factor leading to the development of usable software is:

a. An understanding of user needs

b. The right development team

c. In-house design standards

d. Early usability testing

e. Management buy-in

1) is the best example for design.

(a)View

(b) Model

(c)Analyzing

(d)None

2) Consider the following statement: *In order to improve an interface design, it is not necessary to consult with the primary users of the system.* Is this statement true or false?

a) true

b) false .

3) & are the main functions of GUI.

(a)Selecting & Executing

(b) Pointing & Editing

(c) Pointing & Selecting

(d)None of these

4) is the following statement false?: *like the user model, the design model is complete and accurate.*

a) False

b) True

5. choose the fields which influence on HCI?

(a) ergonomics

(b) cognitive psychology

(c) computer science

(d) Linguistics

(e) Anthropology

6) A focus on using design features or components that are

A) Dirty and neat

B)Neat and Glitzy

C)Glitzy and dirty

D) All the above

7) _____action of the sides, top, bottom and corners of the screen [ ]

A) Binning

B) Alignment

C) Pinning

D) Align

8) People who are the object of sentence:

A) Normally organization employee, customer

B) Normally customer

C) Normally seller

9) In practice, direct manipulation of all screen objects and actions may not be feasable becuase of .

(a)Action could be Reveresed

(b) operation may be difficult to conceptualize

(c) Need necessary Required

(d) None of these

10) is how a person communicates his or her needs or desires to and from the computer.
(a)Input

(b)Output

(c) Both Input&Output

(d)None of these

11)Almost Every graphical platform now provides a style guide to assist in product .
(a)Interaction

(b)Pattern

(c)Design

(d)Evaluation

12) _____is a concept where one's body of knowledge about one thing is used to understanding else.
A) phosphor

B) Getaphor

C) Metaphor

D) none of the above

13) In which phase of the UI design cycle should evaluation be performed?

a) After prototyping.
b) Throughout the design cycle.
c) After the elicitation of user requirements.
d) After implementation

14)Simplicity synonyms is a
A) Complexity

B) Information

C) Measuring

D) Termination

15) Know your user or client ending with_____
A) Testing

B) design

C) Planning

D) none

16.A prototype is primarily a vehicle for exploration, communication, and evaluation. Its purpose is
to obtain user input in design, and to provide feedback to designers
A) Icons

B)Windows

C)Screens

D)None

17. Severity Ratings in Heuristic Evaluation which number indicates a minor usability problem. Important to fix and should be given a high priority.
A) 0

B)1

C)2

D)3

18 _____of screens can be easily developed and used very early in the development process
A) Development

B) Hand-drawn sketches

C)none

D)All

19. _____validates design decisions.
A)Windows

B) Icons

C)Screening

D) Testing

20. Common button functions should have standard _____
A) Shape.
B) Name
C) value.
D) Size.

Arab Academy for Science, Technology & Maritime Transport

College of Computing and Information Technology

EXAMINATION PAPER- Fall 2022/2021

Course Title: Human computer Interaction **Date**: June 2022

Course Code: CS471 **Time allowed**: 2 Hours

Lecturer: Dr. Hatem Abdelkader **Start Time**: 9 am

Student's Name: ----------

Student's Department: ---------- **Reg.# :** ----------

Question #	Marks	
	Available	Actual
1	10	
2	10	
3	10	
4	10	
Total		
Lecturer	**Name**:	
	Signature :	
	Date:	

Examination Committee	Signature	Date

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6. When software is poorly designed, the penalties are:
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   a. An understanding of user needs
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Question 2: **(10 MARKS)**

1- Heuristic evaluation uses 10 guidelines or heuristics. State five

2-Define the terms 'deductive reasoning'; 'inductive reasoning'; and ' abductive reasoning' and provide an example of each related to HCI.

3- Walkthroughs are a common technique to carry out early usability testing.

(i) Briefly explain what a walkthrough is. Make sure you cover the benefits and limitations of a walkthrough.

(ii) There are different types of walkthrough. Briefly explain the differences between a Heuristic Walkthrough and a Cognitive Walkthrough. What are the benefits of each?

4- What is the difference between slips and mistakes?

5- Describe **one** circumstance when the actions for the cognitive walkthrough should be constructed and analyzed at the micro-level (e.g. mouse-clicks and keystrokes).

Question 3: **(10 MARKS)**

1- Give four Common interaction styles

2- What are the three stages for doing heuristic evaluation?

3- Give differences between speech synthesis and speech recognition

4- What are the different data gathering techniques?

5-Your team of usability experts wants to quickly identify potential usability problems **throughout** a Web site. Unfortunately, you have no time to recruit and use human participants. Which evaluation method do you use? Why?

Question 4 **(10 MARKS)**

1- A modern hotel has installed a sandwich making robot to supply room service sandwiches at any hour of the day. The hotel also has an automated delivery system that will take the completed

sandwich to a specified room. You have been asked to program a software agent interface that guests can phone to order sandwiches. Provide a hierarchical task description of the sandwich ordering process.

2-How would you use the GOMS Keystroke-Level Model (KLM)? Remember that the operators are K, P, H, M, which are respectively Keystrokes, Pointing, Homing, and Mental Preparation. You don't need to give all the heuristics for M.

3- You have conducted a contextual inquiry and task analysis of user behavior at a UCB bus stop and identified the following set of sample tasks that you want to implement in a kiosk: (a) Querying for the next bus, given a route name or destination name. (b) Finding out the best route to a shopping mall on the following Saturday (you don't know the station or line, just the name and city of the mall. The kiosk should figure out the routes and connections, and print a map for you).

a. Sketch a main page for the kiosk which enables the scenarios above (you don't have to include all the features the kiosk would have). Include labels as needed on icons

b. Sketch Scenario (a) using storyboarding.

c. Sketch scenario (b) using storyboarding