Final Examination Cover Sheet
First Semester: 1435-1436 / 2014-2015

Course Instructor:		**Exam Date:**	**13/1/2015**
Course Title:	**Human Computer Interaction**	**Course Code:**	**IT-201**
Exam Duration:	**2 Hours**	**Number of Pages:** (including cover page)	**11**

Exam Guidelines

- **Mobile phones are not permitted.**
- **Calculators are permitted.**

Marking Scheme

Questions	Score
Q1	
Q2	
Q3	
Q4	
Total	

Student Name: _____ **Student ID:** _____

Question 1: Multiple Choice Questions

Circle the correct choice. There are a total of 40 MCQs.   [40]

1. The four pillars of design are:
    a. Identify Business Needs, Determine Costs, Expert Review, Evaluation
    b. User-interface Requirements, Guidelines Documents and Processes, User-Interface Software Tools, Expert reviews/Usability testing
    c. Return on Investment, Role Specialization, Legal Issues, Social Impact
    d. Project Schedule, Project Process, Planning for Migration, Evaluating Results

2. Storyboarding is _____.
    a. Sharing typical user experiences as a story.
    b. Using pictures and graphs to describe the initial user-interface concepts, business rules, and automation assumptions.
    c. Conveying the high-level goals of the new system
    d. Weighing individual rights versus societal benefits

3. Universal Usability Testing _____.
    a. Is a quick approach to task analysis, prototype development, and testing with as few as three to six test participants.
    b. Is testing interfaces with highly diverse users, hardware, software platforms, and networks.
    c. Puts new interfaces to work in realistic environments or in a more naturalistic environment in the field for a fixed trial period.
    d. Is a type of testing in which the users try to find fatal flaws in the system or otherwise destroy it.

4. The direct involvement of people in the collaborative design of the things and technologies they use is called _____.
    a. Social impact statement
    b. Scenario development
    c. Participatory design
    d. Model consolidation

5. This is not a golden rule of Interaction design
    a. Cater to universal usability
    b. Offer informative feedback
    c. Design dialogs to yield closure
    d. Prevent errors
    e. All of these golden rules

6. Following is not a knowledge associated with HCI.
   a. Psychology
   b. Computer Science
   c. History
   d. Technical Writing

7. Retention over time means
   a. Total number of interfaces which have multimedia content.
   b. How long does it take for typical members of the community to learn relevant task?
   c. How long does it take to perform relevant benchmarks?
   d. All of above
   e. None of Above

8. Augmented reality is _____.
   a. The same thing as virtual reality
   b. A type of dashboard displaying a large volume of information at one time.
   c. An innovation in which users see the real world with an overlay of additional information.
   d. The use of haptic interaction skills to manipulate objects and convert the physical form to a digital form.

9. The advantages of WYSIWYG word processors include all of the following except _____.
   a. Users see a partial page of text.
   b. The document is seen as it will appear when printed.
   c. Cursor action is visible and cursor motion is natural.
   d. Immediate display of the results of an action

10. Which of the following is not a characteristic of direct manipulation interfaces?
    a. Visibility of the objects and actions of interest.
    b. Menu selection and form fill-in.
    c. Rapid, reversible, incremental actions.
    d. Replacement of typed commands by a pointing action on the object of interest.

11. All of the following are good guidelines for use of icons except _____.
    a. Represent the object or action in a familiar and recognizable manner.
    b. Carefully consider three-dimensional icons; they are eye-catching but also can be distracting.
    c. Limit the number of different icons.
    d. Make the icon blend in with its background.

12. This is a usability requirement.
   a. Portability
   b. Minimize training time
   c. Security
   d. Interoperability

13. What three primary factors influence users' expectations and attitudes regarding response time?
   a. Previous experiences, individual personality differences, and task differences
   b. Skill level, previous experience, and task differences
   c. Individual personality differences, skill level, and type of hardware
   d. Previous experience, user goals, and skill level

14. For repetitive tasks, users prefer and will work more rapidly with_____.
   a. Variable response times
   b. Longer response times
   c. Shorter response times
   d. Linear productivity

15. Under what conditions might a *slower* response rate might be more desirable?
   a. A slower response rate is never more desirable. Users demand speed.
   b. When increasing user think time can lead to better processing of information and fewer errors.
   c. For software developers working on collaborative projects.
   d. When web display variables cannot be controlled.

16. The size of a chunk of information a person can hold in short-term memory depends on _____.
   a. Their familiarity with the material (knowledge and experience).
   b. Their long-term memory
   c. Their natural cognitive abilities
   d. Their age and gender.

17. Which statement is not true about user response time?
   a. Users generally prefer shorter response times.
   b. Longer response times (> 15 seconds) are disruptive.
   c. Shorter response time leads to longer user think time.
   d. A faster pace may increase productivity, but it may also increase error rates.

18. Speech and audio technologies are based on:
   a. Speech store and forward
   b. Discrete-word recognition and continuous-speech recognition
   c. Voice information systems and speech generation
   d. All of the above

19. Almost all keyboards use the _____ layout.
    a. ABCDE
    b. QWERTY
    c. Inverted-T arrangement
    d. Virtual

20. Synchronized scrolling is a type of coordination where _____.
    a. The scroll bar of one window is coupled to another scroll bar, and action on one scroll bar causes the other window's contents to scroll in parallel.
    b. Coordinated windows can be used to support hierarchical browsing.
    c. Browser tabs allow you to view multiple web pages in the same browser without the need to open a new browser session.
    d. Scroll bars can automatically be turned on and off to conserve screen space.

21. Within a sequence, users should be offered some sense of _____.
    a. When exceptions will likely occur.
    b. System performance and its effect on task completion.
    c. How far they have come and how far they have to go to reach the end.
    d. When errors will be uncorrectable.

22. Twitter is an example of _____.
    a. Microblogging
    b. Texting
    c. A discussion group
    d. A Wiki

23. The design of image that scans for flaws in an entire circuit diagram, medical image, or newspaper layout called:
    a. Monitoring
    b. Diagnostics
    c. Navigation
    d. Image generation.

24. The three initial strategies that can reduce user frustration are _____.
    a. Reduce long-term memory load, provide only very simple interfaces, and decrease automaticity.
    b. Reduce short-term and working memory load, provide information-abundant interfaces, and increase automaticity.
    c. Increase short-term and working memory load, provide information-abundant interfaces, and decrease automaticity.
    d. Increase response times for simple tasks, increase short-term memory load only, increase automaticity.

25. _____ is a combination of menus and form fill-in techniques.
    a. Dialog box
    b. Audio menu
    c. Menu items
    d. None of the above

26. Goals of Cooperation in collaboration
    a. Conference
    b. Meeting and decision support
    c. Electronic commerce
    d. All of the above

27. In Time/Space Matrix Model, Remote Interaction is
    a. Same place same time
    b. Same place different time
    c. Different place, same time
    d. Different place, different time

28. Scrolling menus are _____.
    a. An attempt to replace menus and toolbars with one-inch tabs grouping commands by task.
    b. A type of menu that displays all of the menu items on the screen at once but shows only items near the cursor at full size.
    c. A type of menu that displays the first portion of the menu and an additional menu item, typically an arrow that leads to the next set of items in the menu sequence.
    d. Another name for adaptive menus.

29. Collaborative web pages that are open for users to add or revise content are called _____.
    a. Blogs
    b. Digests
    c. Wikis
    d. ListServs

30. The main obstacle to speech recognition is
    a. Increased cognitive load compared to pointing
    b. Interference from noisy environments
    c. Unstable recognition across changing users, environments, and time
    d. All of the above

31. Which of the following is true about "Wikinomics"?
    a. The cost for contribution is low
    b. Editing a wiki is complicated
    c. Tasks are not easily broken down into manageable pieces.
    d. Wikis are based on recognized expert contributions

32. Tabbed browsing is a type of coordination where _____.

    a. Windows can automatically be resized and arranged so that they do not overlap each other

    b. Users can view multiple web pages in the same browser without the need to open a new browser session.

    c. The current state of the display with all the windows and their contents is automatically saved.

    d. Dependent windows are opened simultaneously in a nearby and convenient location.

33. Embedded links _____.

    a. Are distracting to users.

    b. Waste screen space.

    c. Permit items to be viewed in context.

    d. Are useful for expert users.

34. Which one of the following is NOT a good rule for organizing menu contents into meaningful groups and sequences?

    a. Create groups of logically similar items.

    b. Form groups that cover all possibilities.

    c. Make sure that some items overlap.

    d. Use familiar terminology, but ensure that items are distinct from one another.

35. Which of the following is a good idea when designing menus for a small screen device like a phone?

    a. Focus on simplicity, important functions, relegate others to other platforms

    b. Present as many functions as possible

    c. Always sequence menu items in alphabetical order

    d. Don't worry about learnability

36. Guidelines for good use of color include all of the following except:

    a. Use color conservatively.

    b. Limit the number of colors

    c. Use black and white in graphic displays for greater information density.

    d. Consider the needs of color-deficient users.

37. _____ are useful when the hands and eyes of a user are busy.

    a. Palettes

    b. Menu maps

    c. Tree structured menus

    d. Audio menus

38. A speech generator is useful for users in all the following situations <u>except</u> when:
    a. They have a long list of data entry items
    b. Their visual channels are overloaded
    c. They must be free to move around
    d. When the environment is too brightly lit, too poorly lit

39. Users with motor disabilities often prefer _____ over mice.
    a. Touchpads and tablets
    b. Directional pads and trackpoints
    c. Joysticks and trackballs
    d. Touchpads and joysticks

40. Linear menu sequences _____.
    a. Are not effective for novice users performing simple tasks.
    b. Guide the user by presenting one decision at a time.
    c. Require more display space than simultaneous menus.
    d. Give users a good overview of the choices.

Question 2: True/False Questions

Write T for True and F for False against every question.   [20]

1. Can-You-Break-This tests is a usability testing which put new interfaces to work in realistic environments or in a more naturalistic environment in the field for a fixed trial period   **[F]**

2. Expert review methods include Cognitive walkthrough and Heuristic evaluation   **[T]**

3. System reliability means system should be available and online as much as possible.   **[T]**

4. One of the disadvantages of direct manipulation is visually present task concepts.   **[F]**

5. Research shows that many novice users are fearful due to experience with poor product design.   **[T]**

6. Command language interfaces are easier to learn than direct manipulation interfaces   **[F]**

7. System messages should be meaningful, specific, and distinctive. **[T]**

8. One of the eight golden rules of interface design suggests that providing feedback for every user action is too distracting for the user. **[F]**

9. If users have experienced rapid performance previously, they will expect and demand it in future situations. **[T]**

10. Designer can reduce user frustration by designing for expert users first, not for universal usability. **[F]**

11. When comparing input devices, a mouse is the most accurate for text selection. **[T]**

12. A speech generator is useful for users when they must be free to move around **[T]**

13. Role-centered design emphasizes the users' tasks rather than the applications and documents. **[T]**

14. As the menu depth increases, time and number of errors decreases. **[F]**

15. When comparing input devices, a touch screen is the most preferred for data entry. **[F]**

16. The two-dimensional menus give users a good overview of the choices, reduce the number of required actions, and allow rapid selection. **[T]**

17. Wikipedia and LinkedIn are examples of competitive work. **[F]**

18. The last letter of the command is often used for the shortcut to favor memorability **[F]**

19. Provide support for one-handed interaction is a strategy for creating an interface optimized for a small screen device input **[T]**

20. Side-by-side placement of overview allows users to see the big picture and the details at the same time. **[T]**

Short Essay Questions

Elaborate in your own words and give appropriate explanation, model and example if necessary.

Q3:

A. List three examples of direct-control and three examples of indirect-control pointing devices?   [3]

Direct control devices:

• Lightpen
• Touchscreen
• Stylus

Indirect control devices:

• Mouse
• Trackball
• Joystick
• Trackpoint
• Touchpad
• Graphics tablet

A. Describe four characteristics of a well-written error message.   [4]
Any four of the following:

1. Be as specific and precise as possible. Determine necessary, relevant error messages.
2. Be constructive. Indicate what the user needs to do.
3. Use a positive tone. Avoid condemnation. Be courteous.
4. Choose user-centered phrasing.
5. State the problem, cause, and solution.
6. Consider multiple levels of messages.
7. State brief, sufficient information to assist with the corrective action.
8. Maintain consistent grammatical forms, terminology, and abbreviations.
9. Maintain consistent visual format and placement.

C. Briefly explain in your own words how role-centered design might improve a user's efficiency.   [3]

Users get information and interface choices tailored the tasks they need to perform for a specific role. This could improve performance and reduce

distraction while the user is working in a given role and could facilitate shifting of attention from one role to another.

The personal role manager could simplify and accelerate the performance of common coordination tasks, in the same way that graphical user interfaces simplify file-management tasks.

Q4: Explain the following concepts: [10]

i.   Consistency Inspection

The experts verify consistency across a family of interfaces, checking for consistency of terminology, fonts, color schemes, layout, input and output formats, and so on within the interface as well as in the training materials and online help

ii. Online Communities

Are groups of people who may be widely distributed geographically and across different time zones. These people come online to discuss, share information or support, socialize, or play games. Communities that focus on shared interests, such as health concerns or a hobby, are often referred to as *communities of interest* (Cols). Communities whose focus is professional are known as *communities of practice*

iii. Discount Usability Testing

Is a quick approach to task analysis, prototype development, and testing with as few as three to six test participants.

iv. Focused partnerships.

Are collaborations between two or three people who need each other to complete a task. Partners can use e-mail, chat, instant messaging, telephone, voice mail, video conferencing, or a combination of these technologies.

v.   Pull down menu

Are menus that user can access by making selections on a top menu bar, it is used by the majority of desktop application today. They help eliminating invalid values