

Reg. No. :

**Question Paper Code : 90396**

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2022.

Seventh Semester

Computer Science and Engineering

CS 8079 – HUMAN COMPUTER INTERACTION

(Common to : Computer and Communication Engineering/Information Technology)

(Regulations – 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are mental models, and why are they important in interface design?
2. Compare between sensor-based and context-aware interaction.
3. What is query-based evaluation technique through user participation?
4. Sketch the phases in Interaction design process.
5. What is speech act theory?
6. Define distributed cognition.
7. List the types of mobile applications.
8. How Clickstream is used to show the behavior of users on websites?
9. Write a note on hybrid selection.
10. Differentiate between Overlays and Inlays with respect to the situation of usage.

PART B — (5 × 13 = 65 marks)

11. (a) Illustrate briefly the different interaction styles used to accommodate the dialog between user and computer with diagram.

Or

- (b) Consider the following scenario, and choose a suitable combination of input and output devices to best support the intended interaction. It may help to identify typical users or classes of user, and identify how the devices chosen support these people in their tasks. Explain the major problems that the input and output devices.

Environmental database

A computer database is under development that will hold environmental information. This ranges from meteorological measurements through fish catches to descriptions of pollution, and will include topographical details and sketches and photographs. The data has to be accessed only by experts, but they want to be able to describe and retrieve any piece of data within a few seconds.

12. (a) (i) Distinguish between principles, guidelines and standards, using examples of each to illustrate. (7)  
(ii) Why is context important in selecting and applying guidelines and principles for interface design? Illustrate your answer with examples. (6)

Or

- (b) Describe in detail about the waterfall model of the software life cycle with diagram.
13. (a) In the programmable user model approach, it is possible to provide an algorithm to describe the user's behavior in interacting with a system. Taking this position to the extreme, consider an example, creating a column of numbers in a spreadsheet and calculating their sum. Describe the algorithm needed by the user to accomplish this task. Write the description in pseudocode.

Or

- (b) (i) Illustrate in detail about text based communication techniques with examples. (7)  
(ii) Compare and contrast between static web content and dynamic web content. (6)

14. (a) Illustrate in detail about the various elements of Mobile Design with examples.

Or

- (b) (i) Exemplify the convergence of the Web and Mobile in Mobile 2.0 (6)  
(ii) Illustrate in detail about mobile information architecture. (7)
15. (a) (i) Explain in detail about drag and drop mechanism in web interface design. (7)  
(ii) Describe about the different ways to implement contextual tools. (6)

Or

- (b) (i) Discuss in detail about inline paging and scrolled paging. (6)  
(ii) Explain about inline assist process flow and dialog overlay process flow with examples. (7)

PART C — (1 × 15 = 15 marks)

16. (a) Group the following functions under appropriate headings, assuming that they are to form the basis for a menu-driven word-processing system-the headings you choose will become the menu titles, with the functions appearing under the appropriate one. You can choose as many or as few menu headings as you wish.

*save, save as, new, delete, open mail, send mail, quit, undo, table, glossary, preferences, character style, format paragraph, lay out document, position on page, plain text, bold text, italic text, underline, open file, close file, open copy of file, increase point size, decrease point size, change font, add footnote, cut, copy, paste, clear, repaginate, add page break, insert graphic, insert index entry, print, print preview, page setup, view page, find word, change word, go to, go back, check spelling, view index, see table of contents, count words, renumber pages, repeat edit, show alternative document, help*

After grouping, answer the following questions:

- Why this grouping is important?
- What is the problem with using lots of menu headings? And what if for very few menu headings? What is the tradeoff?

Consider the following:

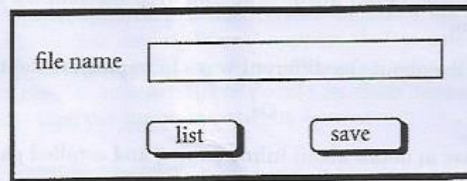
*"I can group my functions either into three menus: with lots of functions in each one, or into eight menus with fewer in each."*

Which will be easier to use? Why?

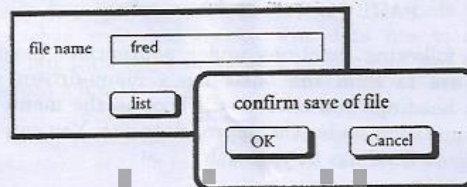
Or

- (b) A designer described the following interface for a save operation.

The users initially see a screen with a box where they can type the file name (see Screen 1). The screen also has a list button that they can use to obtain a listing of all the files in the current directory (folder). This list appears in a different window. When the user clicks the save button, the system presents a dialog box to ask the user to confirm the save (see Screen 2).



Screen 1



Screen 2

Two programmers independently coded the interface using two different window managers. Programmer A used an event-loop style of program whereas programmer B used a notifier (callback) style. Sketch out the general structure of each program. Highlight any potential interface problems that may happen for each programmer and how they could attempt to correct them.