

This question paper contains 3 printed pages.

3131

Your Roll No.....

MECTA
COMPUTER TECHNOLOGY AND APPLICATION
Paper – CS.551
(Man Machine Interface)

J

Time : 3 hours

Maximum Marks : 100

(Write your Roll No. on the top immediately on receipt of this question paper)
Attempt any five questions. All questions carry 20 marks each.

1.

(a) In your own words, describe why you think it's important to abandon bad design ideas. Also, give an example of feedback that should prompt you to abandon an idea. 6

(b) Choose an aspect of an existing UI and evaluate it against 4 of the 5 Learnability Principles. An example UI aspect that you may use are the dynamic menus (menu items immediately visible and where change to reflect usage patterns) now used by many Microsoft products. 7

(c) Compare and contrast the Flexibility Principles Substitutivity and Customizability. For each, give an example of a UI aspect that represents the given principle (either negatively or positively) and explain. 7

2.

(a) How does the Robustness Principle of Observability aid Learnability? Make your case by explaining how characteristics of Observability support two or more of the Learnability Principles. 7

(b) Using a subset of all the design principles we have covered (and any applicable Ideas from Human Abilities if desired), make an argument for better usability when comparing the standard scrollbars on Macs vs. PCs. 7

(c) Define and give an example of an affordance. How does a "good" affordance relate to Norman's Execute-Evaluate Cycle and the Gulfs there in? 6

3.

(a) Discuss the "General Issues in Choosing Dialog Styles." Explain these issues with regard to direct manipulation. 10

(b) Select one advantage and one disadvantage of direct manipulation interfaces; discuss each with respect to how command line interfaces differ. 5

(c) When evaluated against the usability principles, how do WIMP interfaces do? What is one (sub) principle that WIMP interfaces adhere to especially well? Especially poorly? 5

4.

(a) Explain why a speech interface does not necessarily use natural language and a natural language interface does not necessarily use speech. Give an example of each case. 6

(b) Why is the Wizard of Oz evaluation technique commonly used when testing speech / natural language interfaces? 6

(c) Discuss the features, including their strengths and weaknesses, of the following three user interfaces styles: menu driven style; natural language style; direct manipulation style. 8

5. Justify the following Statements:

(a) Observational methods such as ethnography can play an important role in informing the process of automated systems design. However, there is not an obvious mapping from an observational record and a systems requirements document. The extent of the contribution which observational methods can make to the system specification process has still to be demonstrated. 5

(b) Software engineers and sociologists can work together effectively. However, there is a wide gulf between these disciplines and entrenched philosophical positions will probably ensure that that gulf cannot be bridged. Effective inter-disciplinary cooperation requires much flexibility on both sides and requires both sides to question their own assumptions and working methods. 5

(c) Some conventional principles which are normally thought of as 'good design' may be inappropriate for cooperative systems. Manual intervention and manipulation of information may be essential implicit methods of communication and cooperation. 5

(d) An important role for ethnographers is to act as substitute users in a "user-centered" systems design process. Because of their close involvement with end users, ethnographers are well equipped to understand their problems and can be effective in discovering gross errors in the systems design. 5

6. "Distributed Cognition: Towards a New Foundation for Human-Computer Interaction Research".

(a) Do you agree with the quote? Explain and justify your viewpoints, categorically (15 Marks)

(b) Please discuss a couple of "old foundations" for HCI. 5

7. (a) The Honeywell system used the metaphor of "car central locking" to design a new house burglary alarm system. Could the same metaphor be used as a starting point for a better user interface to password authentication on computers? Justify your answer. 10

(b) Explain how the HCI framework for design could be applied to designing effective usable security systems. 10