

TT#01

Marks: 20

Course: Human Computer Interaction (SWE 431)

Time: 30 mins

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1. Explain the HCI principle "Reduce Memory Load" and provide scenario-based examples to illustrate its application in user interface design. 8
 2. Explain briefly what you understand by the term "gulf of execution/evaluation"? 4
 3. What defines multimodal interaction, and why should system designers consider implementing it? 8

Shahjalal University of Science and Technology
Department of Computer Science and Engineering
4th Year 1st Semester Final Examination – June 2021 (Session: 2017-18)
Course Code: CSE 495 Credits: 3.0
Course Title: Human Computer Interaction
Time: 3 hrs Total Marks: 100

Group A
[Answer all the questions]

1. Answer any FIVE

5x2=10

- a) Relate the terms Human Computer Interaction and User Interface Design.
- b) Mention Universal Design Principal.
- c) What is WIMP interface?
- d) State the design's golden rule.
- e) What are the difference between gulf of execution and gulf of evaluation?
- f) What is mind maps?
- g) What are the problems of interface metaphors?
- h) What is 'Wizard-of-Oz' prototyping?

2. Answer any FOUR

4x5=20

- a) What is good design mean? What is the philosophy of User Centred Design?
- b) "The human eye has a number of limitations" – Give three examples of them. Describe how any one of them should be taken into account in the design of a visual interface.
- c) What are the data gathering techniques? Mention pros and cons of observation.
- d) How does ethnographic study work assist to gather data?
- e) What is evaluation? What are formative and summative evaluation?
- f) What is prototyping? What are the differences between Low-fidelity Prototyping and High-fidelity Prototyping

3. Answer any TWO

2x10=20

- a) You have been asked by a software company to provide a training session on User-centered Design. What problems do users with cognitive impairments and learning difficulties face and what could be taken into consideration to ensure that your design supports users with those impairments.
- b) Briefly discuss on first two categories of usability principal.
- c) What is Focus Group Discussion? How to perform this technique to collect data and validate it? Discuss on interview techniques to collect data.

Group B
[Answer all the questions]

5x2=10

4. Answer any FIVE

- a) What is 10 second rule in Web design?
- b) What is the issue of long URL?
- c) What is the potential problem of *Think a loud* approach? ✓
- d) What are the methods of gathering subjective data? ✓
- e) Why is consent important for the participants before joining experiment?
- f) What is attribution theory?
- g) What are the methods of predicative evaluation? ✓
- h) When should you start the prototyping phase?

5. Answer any FOUR

4x5=20

- a) What is dependent and independent variable while designing user experiment? Discuss with example.
- b) How to conduct study design decision for participants?
- c) What are the typical steps to carry out controlled experiments in HCI?
- d) What are the steps of Norman's Model of Interaction?
- e) What are the component of interaction framework? Give example of each component. 5
- f) List three types of cognitive process. Explain how they (any one of them) can result in human error when using a computer system. 5

6. Answer any TWO

2x10=20

- a) What is Hypothesis? What is the purpose of Null and Alternate hypothesis?

Hypothesis: There is no difference in user performance (time and error rate) and preference (5 point likert scale) when typing on two sizes (i.e., small, large) of an alphabetic, qwerty and random on-screen keyboard using a touch-based large screen, a mouse-based monitor, or a stylus-based PDA.

What are the independent variables here? What are the levels? What are the dependent variables here? What is the purpose of control variable?

- b) What is double black diamond? What are the activities of each step of black diamond?
- c) As part of a new project Digital Pathways are developing an Interactive Kiosk for a Science Museum to be used by children. The kiosk will provide learning activities and games about wind turbines. Answer the following:
 - a) List the possible stakeholders of this system
 - b) Explain why a combination of ethnography and prototyping is useful for the requirements elicitation process.
 - c) List primary differences between functional requirements and non-functional requirements.

Term Test #01
CSE 495: HCI
Time: 45 minutes
Mark:20

1	What is a good design? What are the steps of User-Centric Design?	1+3
2	What are the categories of the Usability principle? How you can achieve the learnability principle?	1+5
3	What are the data gathering techniques? What are the pros and cons?	5
4	What Makes a System Usable? What is the role of humans in terms of interaction?	5

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