



UNIVERSITY *of* LIMERICK
OLLSCOIL LUIMNIGH

Academic Year	2006/2007	Semester:	Spring
Module Title	Human-Computer Interaction	Module Code	CS4826
Duration of exam	2 hours	% of total marks	50
Lecturer	Michael Cooke	Marked out of	100

Instructions to Candidates.

- Answer any four questions.
- All questions carry equal marks.

Q1 Consider the following statements. For each one state whether you agree with it or not and write a short paragraph explaining your answer.

1. When designing a user-centred interface it is important to decide between using knowledge in the world *or* knowledge in the head. (5 marks)
2. The principle of mapping refers to the relationship between control surfaces and effector surfaces. (5 marks)
3. Rehearsal is the most efficient means of transferring information from working memory to long-term memory. (5 marks)
4. “Functional fixedness” refers to the importance of making sure that icons or commands consistently result in the same functions being executed. (5 marks)
5. The “Gestalt” approach to perception helps us to account for the fact that humans are not very good at proof-reading text. (5 marks)

Q2 Do all three parts: a, b & c.

- a) Draw a diagram of Norman’s Action Cycle model (also known as the 7 Stages of Action) and explain each of its stages. (10 marks)
- b) Apply this model to analyse the steps involved in saving a new word document with the filename “Project-1” to the desktop. (10 marks)
- c) Briefly point out the limitations of this approach for evaluating interaction. (5 marks)

Q3 Cultural probes as discussed by Gaver et al., (1999) are a method for getting information from users. Discuss the role of cultural probes in the context of gathering requirements for design, clearly pointing out their potential strengths and limitations. (25 marks)

Q4 Do parts a) and b)

- a) Explain with examples the following terms: Direct Manipulation WIMPS; Ubiquitous Computing; Tangible Computing. (10 marks)
- b) Consider the following extract from the ISO9241 Standards on menu design. Explain and comment on the rationale behind the guidelines when designing menus for traditional desktop GUI systems. (15 marks)

5.2 Grouping options in a menu: Menu options should be grouped within a menu to reflect user expectations and facilitate option search.

5.2.1 Logical groups: If the menu option contains a large number of options (eight or more) and these options can be logically grouped, options should be grouped by function or into other logical categories which are meaningful to users. EXAMPLE: Grouping the commands in a word processing system into such categories as customise, compose, edit, print.

5.2.2 Arbitrary groups: If 8 or more options are arranged arbitrarily in a menu panel, they should be arranged into equally distributed groups utilising the following equation

$$g = \text{sq. root of } n$$

where

g is the number of groups

n is the number of options on the panel.

EXAMPLE: Given 19 options in a menu panel, arrange them into 4 groups of about 5 options each.

Q5 Discuss the difficulties associated with the design and evaluation of groupware systems not shared by the evaluation of single-user applications. In your answer, indicate how these difficulties might be overcome. (25 marks)

Q6 Write a short essay of up to three pages in length arguing why it might be necessary for designers of computer systems to understand human emotion. Your essay should acknowledge the challenges faced by designers of such systems. Illustrate with examples. (25 marks)