

**OLLSCOIL NA hÉIREANN, GAILLIMH
NATIONAL UNIVERSITY OF IRELAND, GALWAY**

SUMMER EXAMINATIONS 1998-1999

HUMAN COMPUTER INTERFACE DESIGN IE518

**M.ENG.SC INDUSTRIAL ENGINEERING AND INFORMATION
SYSTEMS / SOCRATES STUDENTS**

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**Time Allowed: 3 Hours
Attempt 4 Questions
All questions carry equal marks**

Question 1.

Marks

Write short notes on three of the following:

8.33*x3

- Disciplines which contribute to Human Computer Interaction (HCI)
- Attention
- Mental models
- Hierarchical Task Analysis (HTA)
- Interpretative Evaluation

Question 2.

Marks

- (a) What are the goals of Human Computer Interaction (HCI)?
- (b) Outline the scope of HCI
- (c) Identify the main disciplines that contribute to HCI and outline the nature of their contribution

8

8

9

Question 3.

Marks

Outline the key principles of user-centred design put forward by Gould and Lewis (1985) and Gould et al. (1987)

12

In your opinion, does the computerised RULA program WinRULA reflect the application of these principles? Justify your answer.

13

Question 4.	Marks
(a) Distinguish between the following models of systems development:	13
<ul style="list-style-type: none">• Waterfall• Prototyping• Star• Helical• Star	
(b) In your opinion, which of these three models is most appropriate for ensuring that human factors are considered in the system's development process?	12

Question 5.	Marks
(a) Distinguish between Functional, Data and Usability requirements, and the techniques that are used to describe them.	10
(b) Select one of the techniques used to describe data requirements and outline how it represents such requirements. Use the case of computerised RULA to illustrate your answer.	15

Question 6.	Marks
(a) Outline the Cognitive Complexity Theory (CCT) approach to modelling user interaction.	8
(b) What are the similarities between the GOMS approach and CCT?	8
(c) How are training time and productivity predicted using CCT?	9

Question 7.	Marks
(a) What are the three main families of knowledge representation?	8
(b) Explain the following terms: <ul style="list-style-type: none">• Inheritance• Schemas• Frames	9
(c) What relevance does knowledge representation have for human computer interface design?	8