Ollscoil na hÉireann, Gaillimh   *GX_____*
National University of Ireland, Galway

Semester I Examinations 2008/2009

Exam Code(s)	3IF121; 3BA
	1SD1
Exam(s)	B.Sc. in Information Technology
	B.A.
	Higher Diploma in Software Design and Development

Module Code(s)	CT318
	CT865
Module(s)	Human Computer Interaction

Paper No.	1
Repeat Paper	_____ Special Paper

External Examiner(s)	Professor John A. Keane
	Professor Sally McClean
Internal Examiner(s)	Prof. G. Lyons
	Ms. K. Young

Instructions: Answer any **three** questions.
                      All questions will be marked equally.

Duration	2hrs
No. of Answer Books	1

Requirements:
Handout
MCQ
Statistical Tables
Graph Paper
Log Graph Paper
Other Material

No. of Pages	3
Department(s)	Information Technology

Q.1 You have been asked to design an interactive web-based learning environment for children to support their development of effective literacy and numeracy skills. The system must be appealing and fun to use, engage the children, and enable navigation by a variety of means (e.g. by topic, or through sequential lessons, or by activity).

The site must also store the children's details, greet them when they enter, store a record of their performance on various games and tasks, and recommend areas for further attention. The system is competing against a variety of commercial gaming platforms (Vtech, Nintendo DS, Sony PlayStation, Microsoft Xbox ,etc.) and so must be very well designed to appeal to its audience.

The company has indicated that they want an initial design submission from you to include the following:

(a) A PACT analysis for this application.

[5]

(b) A paper prototype of three of the interface screens, representing the system's functional organisation and overall "look and feel". Clearly outline your rationale for each of the design choices you make (e.g. interaction styles).

[9]

(c) An evaluation plan, clearly outlining what activities, when, how and by whom the evaluation activities will be undertaken, for the system which will support comprehensive testing of your design.

[6]

Q. 2. **(a)** Effective requirements collection and analysis is critical to the design and development of a successful interactive system. You have been asked to comment on the efficacy of standard requirements documentation techniques for representing interactive system requirements to a quality review group within your organisation. Your response should include examples to illustrate your arguments, as appropriate.

[8]

(b) You have been asked to design a remote control device that can be used to control the lighting, heating, curtains/blinds in the lecture theatres and classrooms on the NUI, Galway campus. Prepare a prototype design, outlining the design principles you found relevant in solving this problem.

[8]

(c) Using appropriate examples, explain Norman's *gulf of execution* and *gulf of evaluation* as they relate to successful interaction design.

[4]

Q. 3. (a) Effective interaction design is ultimately about the correct assignment of responsibilities to the parties participating in the interaction, i.e. the human and the computer. From your study of the various theories, models, processes, and techniques of interaction design, comment on the validity of the above statement, illustrating your response with appropriate examples as necessary.

[10]

(b) Which interaction style would you apply to the design of each of the following and why?
- An online TV licence system
- An interactive restaurant menu system
- An interactive water testing system (probe)

[6]

(c) You have been tasked with evaluating the efficacy of your organisation's website. Where would you start? Outline a brief plan for undertaking this evaluation.

[4]

Q. 4. (a) (i) Distinguish between Conceptual and Physical Design.
(ii) You have been tasked with developing a website for a local hotel chain. Outline the progression from Conceptual to Physical Design in this context, clearly identifying the inputs and outputs for each design phase.

[10]

(b) HCI research incorporates the study of novel interaction techniques with technology. Current interactions largely rely on vision (screen presentation of information) and touch (keyboard, touch-screens, etc.), with aural (voice recognition), emotion (biosensors), and physical movement all being researched as possible interactive techniques for future everyday computer applications. Drawing on your learning and readings in this course, comment on the potential of these new interactive techniques to "replace" the current dominant desktop / direct manipulation GUI in the next five years.

[10]