Exam Code(s)	3BCT121; 3BA1; 4BA1
Exam(s)	B.Sc. in Computer Science and Information Technology
	B.A.
Module Code(s)	CT318
Module(s)	Human Computer Interaction
Paper No.	1
Repeat Paper	
External Examiner(s)	Professor Jacob Howe
Internal Examiner(s)	Professor Michael Madden
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Instructions: Candidates should answer **Question 1** and **any two other** questions.
All questions carry equal marks.

Duration	2 Hours
No. of Pages	3
Discipline(s):	Computer Science

Requirements:

Release in Exam Venue	Yes [X]	No [ ]
MCQ	Yes [ ]	No [X]
Handout	None	
Statistical/ Log Tables	None	
Cambridge Tables	None	
Graph Paper	None	
Log Graph Paper	None	
Other Materials	None	
Graphic material in colour	Yes [ ]	No [x]

Q.1 You are working as part of a team developing a new *health tracking / monitoring application*. This application will cover both physical (e.g. activity and exercise tracking) and mental (e.g. mood, sleep etc.) health measures. The application is initially targeted at a teenage and young adult population and discussions are under way to link it with the health curriculum in second level schools. Linking use of the app to health benefits is a critical aspect of its design. Given this target audience the user experience is critical to ensure engagement and ongoing use.

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

(a) A PACT analysis for this application.

(**6**)

(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 initial evaluation plan for the system which will support comprehensive testing of your design. This should clearly outline **what** activities will be evaluated, as well as **when** the evaluations will take place, **how** (what techniques) they will be conducted and **who** will undertake them.

(**5**)

Q.2 (a) "*The best way to have a good idea is to have lots of ideas*" (Linus Pauling)

Elaborate on the role of **prototyping** in improving the design of interactions for users of technology devices. Your answer should give consideration of **what** is prototyped and **when,** during the design of an interactive experience.

(**8**)

(b) You have been tasked with developing a website / mobile application for a new gym. Outline the progression from **Conceptual** to **Physical** Design in this context, clearly identifying the inputs and outputs for each design phase.

(**8**)

(c) What are **mental models**? How can a knowledge of these be used effectively during interaction design?

(**4**)

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Q.3 (a) The choice of **interaction style** is one of the most important decisions in interaction design. What factors should be considered in making this choice? Use examples to illustrate your answer.

(4)

(b) Voice-first user experiences are now ubiquitous with smart speaker sales and usage on the rise. Older adults are identified as a particular target audience to benefit from the use of voice assistants. However, a large percentage of users still find the experience of talking to voice assistants unnatural. What general design guidelines can be applied to make voice experiences better? And are there specific guidelines for older adults?

(6)

(c) "*A picture speaks a thousand words*", the importance of **visualisation** in successful interaction designs is well recognised. What are the relevant criteria to consider in incorporating effective visualisations into mobile applications?

(5)

(d) In designing interactive applications there are many **guidelines** available to help the designer. Discuss the type and role of guidelines in producing good interactive system designs.

(5)

Q.4 (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.

(i) From your study of the various **theories**, **models**, **processes**, and **techniques** of interaction design, comment on the validity of the above statement.

(6)

(ii) Discuss issues of the allocation of functions between people and software specifically in the context of a *language learning* system for mobile devices.

(4)

(b) You have been tasked with undertaking a redesign of the university's website. Prepare an outline **evaluation plan** for this project clearly outlining the goals and activities (when, how and by whom the evaluation activities will be undertaken, for the system) involved in the evaluation.

(6)

(c) Comment on the role of **colour** in designing good user experiences.

(4)

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