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TECHNOLOGICAL UNIVERSITY DUBLIN

CITY CAMPUS - GRANGEGORMAN

TU856 – BSc. (Honours) in Computer Science
TU857 – BSc. (Honours) in Computer Science
(Infrastructure)

Year 2

SEMESTER 2 EXAMINATIONS 2024/25

Human Computer Interaction

Internal Examiners:

Dr. Colette Kirwan and Dr. Art Sloan
Dr. Paul Doyle

External Examiners:

Dr. Colm O'Riordan
Dr. Jamal Abdul Nasir

Exam Duration: Two Hours

Instructions: Answer QUESTION 1 and ANY TWO questions of the remaining three available.

Question 1 carries 40 marks while Questions (2), (3), and (4) each carry 30 marks

1.

NOTE: This question is compulsory

- (a) i) Give a brief definition of Human Computer Interaction.
ii) List four disciplines associated with Human Computer Interaction (4 marks)
- (b) Briefly describe how a computer user might engage four of their five senses when interacting with technical devices. (4 marks)
- (c) What are five key features and considerations (combined) *for* each of the following data gathering methods:
i) Interviews
ii) Questionnaires (10 marks)
- (d) How do user goals differ from user tasks? Explain the concept of Task Analysis in the context of users' interaction with technology, particularly in professional settings. Additionally, provide an example of a specific type of Task Analysis in your answer. (7 marks)
- (e) List Nielsen's Heuristics and explain how they can be applied to the user interface design of a technological project. (15 marks)

2. (a) What is User-Centred Design? What are some typical benefits of User-Centred Design?

(10 marks)

- (b) Identify and describe two different ways of representing task descriptions in user centred design. (4 marks)
- (c) Explain any five of the seven Universal Design Principles and provide real-world examples of how they can be applied to the design of an application interface. You may use examples from technology, product design, or the built environment (10 marks)

(d) Briefly explain each of the following terms:

- Low-fidelity prototype
- Medium-fidelity prototyping
- High-fidelity prototype

(6 marks)

3. (a) Define and describe the term, ‘Usability’.

(3 marks)

(b) What is Web Accessibility?

(3 marks)

(c) When evaluating a technological system for usability:

- i) What are the different **types and paradigms** associated with usability evaluation?
- ii) How can **Usability Testing** be conducted based on these paradigms?

(15 marks)

(d) Briefly state how surveys might be used in relation to usability testing.

(4 marks)

(e) What are the main aspects of Acceptance Testing, which may follow Usability Testing?

(5 marks)

4. (a) What is the difference between a **discretionary user** and a **non-discretionary user** of a system interface, software application, or website?

(5 marks)

(b) How might ‘Novice Users’ be contrasted to ‘Expert Users’ of a user interface?

(5 marks)

(c) List and explain the five Gestalt Laws of perceptual organisation and, for each law, give an example of how it could be applied in relation to screen design.

(10 marks)

(d) How might users be associated with ‘mental models’ and why are these models important for user interface design? Give at least one example of an erroneous mental model.

(10 marks)