

UNIVERSITY OF KENT

**DIVISION OF COMPUTING, ENGINEERING
AND MATHEMATICAL SCIENCES**

LEVEL 4 EXAMINATION

Human Computer Interaction

Friday, 12 May 2023 : 14.00 - 16.00 (2 hours)

Paper Instructions
The paper contains THREE questions. Answer ALL the questions.
Calculators are not permitted.
Answer each question in a separate book.
Students are not permitted to remove this question paper from the examination venue

1. Short Questions

- (a) What is a micro-interaction? Name any **two** of the four components of a micro-interaction. Give one example of a micro-interaction in an interface.

[5 marks]

- (b) What are the problems with using a red circle to indicate “stop”, which changes to a green circle when it is safe for the user to proceed with their action?

[5 marks]

- (c) What is the difference between menu depth and menu breadth? Which is better to use to present menu choices to users, and why?

[5 marks]

- (d) With regard to human memory, what is a retrieval cue? Give two examples of retrieval cues used in interface design.

[5 marks]

2. (a) One method of preventing errors in design is to use a forcing function. Forcing functions can be especially useful in safety-critical systems.

In interface design, we distinguish between three types of forcing functions. For each of the following scenarios, identify and name the type of forcing function being used.

- (i) Dialog window appears asking if you want to save your work before closing a document with unsaved changes.
- (ii) ATM forces you to take your card first before releasing your money.
- (iii) When paying for an item purchased online, you cannot complete the payment until you've entered the one-time security code.

[6 marks]

- (b) We distinguish between two types of user errors: slips and mistakes. Slips are unconscious errors – right intention, but wrong action.

In no more than one sentence, identify which type of user is more prone to “slips”, and why.

[4 marks]

- (c) Your team has been given the task of re-designing a website for users to book flights. The first screen allows the user to select their **departure and arrival city**, and their **travel dates** before searching for available flights.

- (i) Identify two ways your team can design this first screen that will prevent the user from making “slips” when specifying their flight requirements.

[4 marks]

- (ii) One of the phases of human-centred design is prototyping. Your team would like to make use of the **lo-fi prototyping** technique. Give three advantages of using lo-fi prototyping.

[6 marks]

3. You are part of a design team that has been tasked with designing a digital touchscreen thermostat.

(a) Sketch an interface design for this system with appropriate annotations. The thermostat system **should** display the current temperature and allow the user to:

- Turn the system on/off.
- Set their preferred room temperature.
- Switch between showing the temperature in Celsius (°C) or Fahrenheit (°F).
- Switch the heating on for a fixed duration.

THERE ARE NO OTHER FUNCTIONS OR FEATURES.

[10 marks]

(b) For each feature that you have designed, identify a design principle that you have used and explain (**in no more than one sentence each**) how the feature implements the design principle.

[10 marks]