

**Tuesday 8 May 2018**

**9.30 am – 11.00 am**

**(Duration: 1 hour 30 minutes)**

## **Interactive Systems (H)**

**Answer All Questions**

**This examination paper is worth a total of 60 marks**

**The use of a calculator is not permitted in this examination**

### **INSTRUCTIONS TO INVIGILATORS**

**Please collect all exam question papers and exam answer scripts and retain for school to collect. Candidates must not remove exam question papers.**

1. This question is about *visual usability* and *affordance*.

(a) Describe what is meant by internal and external consistency. Give an example of both kinds of consistency in the context of a word processing application.

[4]

(b) Give examples of two visual features that influence the perception of hierarchy.

[2]

(c) Define the concepts of proximity and scale. Provide an example of a common mistake that decreases visible usability for each concept.

[4]

(d) Describe the two influences that led to the development of an embodied approach to interaction design.

[4]

(e) Define affordance and give an example of affordance in the context of a cash machine interface.

[4]

(f) Define physical constraints and give an example in the context of a cash machine interface.

[2]

2. This question is about *human factors*.

(a) Provide a diagram for the model of human factors during interaction.

[8]

(b) Describe the four bands of human action, giving an example for each.

[8]

(c) Describe two aspects of human hearing, giving an example for how each is quantified or perceived.

[4]

3. This question is about *experimental design and evaluation methods*.

**Consider the following experimental design. The experiment is about evaluating the impact of latency on the usability of soft keyboards. Participants are recruited from students at a university. During the experiment, participants experience one of three keyboard designs; keyboard with no added latency, keyboard with 50 milliseconds added latency, or keyboard with 100 milliseconds added latency. Each participant is asked to type out the same set of sentences in the same order. The experimenter records typing speed and errors.**

(a) Identify the independent and dependant variables in this experimental design.

[2]

(b) Discuss a benefit and a detriment of the between-subjects design of this experiment.

[4]

(c) Propose an alternative design using a within-subjects design, including how you would order the conditions.

[4]

(d) Identify a potential issue with this experimental design. State what kind of issue it is and how you would correct this issue.

[2]

(e) Design a close-ended question that could be used to gather additional information from participants during this study.

[4]

(f) Describe two key aspects of consent that are required for ethical evaluations. For each aspect, state why this is important for ethical practice.

[4]