



Wednesday 8<sup>th</sup> December 2021  
09.00 am – 11.00 am  
Duration: 1 hour 30 minutes  
Additional time: 30 minutes  
Timed exam – fixed start time

DEGREES of MSci, MEng, BEng, BSc, MA and MA (Social Sciences)

## Interactive Systems (H) COMPSCI 4014

**Section A** is multiple choice. You will find the quiz on Moodle. For each multiple-choice question, there are 4 options and only one answer is correct. A correct answer is worth 2 marks, an incorrect answer will result in a deduction of  $-\frac{2}{3}$  mark, while an answer left blank equates to 0 marks. **Marks: 40/60**

**Section B** expects written answers. Your responses should be typed in plain text into the answer booklet provided. Approximate recommended word counts are shown for each answer. **Marks: 20/60**

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

**Answer All Questions**

## Section B

### 1. This question is about evaluation of software

- (a) You have designed a new system for performing basic television controls, based on arm and hand gestures that are detected by a wrist-worn accelerometer sensor. For example swiping your hand up in the air sharply will raise the television's volume. Swiping your hand down will lower it, and swiping left and right will lower or raise the channel.

Explain a problem that might exist with this system. Then describe a lab experiment you could conduct to explore the issue. Your answer should explain what you select as your independent variable, one or more dependent variables, a potential confounding variable and how you could mitigate it.

(500 words)

[12]

- (b) You have developed a new mobile app. It is a game where users try to remember a series of shapes, to help train their memory. You conduct a user trial by releasing the app to the public, and you program the app to send you back data on user interactions, time of day of usage, and geographical locations of usage. This data will allow you to study the ways people use your app, and the contexts in which they use it. Data collection and the nature of your trial are explained to the user on first launch and must be agreed to before any data is collected.

Explain any potential ethical issues you see with this study design, and explain changes you could make to conduct the study in a more ethically sound manner.

(400 words)

[8]