THIS PAPER IS NOT TO BE REMOVED FROM THE EXAMINATION HALL

UNIVERSITY OF LONDON

CO3348 ZB

BSc EXAMINATION

COMPUTING AND INFORMATION SYSTEMS, CREATIVE COMPUTING and COMBINED DEGREE SCHEME

Interaction Design

Tuesday 14 May 2019: 10.00 – 12.15

Time allowed: 2 hours and 15 minutes

DO NOT TURN OVER UNTIL TOLD TO BEGIN

There are **FIVE** questions on this paper. Candidates should answer **THREE** questions. All questions carry equal marks and full marks can be obtained for complete answers to **THREE** questions. The marks for each part of a question are indicated at the end of the part in [ ] brackets.

Only your first **THREE** answers, in the order that they appear in your answer book, will be marked.

There are 75 marks available on this paper.

Calculators are not permitted in this examination.

UL19/0337

Question 1 Design scenario

You work in a design team which is involved in the user-centred development of a smart wheelchair that can detect and then ascend and descend stairs.

a. Sketch a user interface that might be appropriate for such a wheelchair that would give a disabled user control of the chair.

[8]

b. Describe and justify the prototyping methods you would select for this scenario.

[8]

c. Explain the ethics considerations that you would need to consider when testing this prototype.

[9]

Question 2 Evaluation

As websites become more and more complex, using a variety of resources (such as fonts, CSS frameworks and JavaScript libraries) drawn from servers located around the world, there is the potential for the user experience to be affected by the network connection and the capabilities of the computer running the web browser.

a. Describe a cognitive aspect of human perception that would be most affected by fluctuations in the performance of the web browser in presenting the web pages, leading to frustration and reduction in engagement in the tasks that the web pages are intended to support.

[3]

b. Clearly describe a potential usability evaluation technique that you might use in a laboratory to gain insights into the way that users are interacting with the web pages and might give physiological evidence of frustration if the web site loads slowly.

[7]

c. Describe in detail how you might construct an experimental study to confirm that the technique is detecting a change in user behaviour and that that change is an indicator of frustration.

[15]

Question 3 Essay

Augmented Reality (AR) is generally understood as being a technology where objects that are not actually present are introduced into a representation of reality. Discuss ethical issues that might arise from situations where decisions are made based on an understanding of a reality when the user is unaware that the representation of reality has been altered by a system employing Augmented Reality (AR). Include in your answer a possible scenario, and try to imagine a situation within that scenario where the AR system is removing parts of the reality from a scene rather than adding to it.

[25]

Question 4 Usability

Producers of smart microwave ovens are offering the ability to recall recipes from an instruction repository located on the Internet in addition to using the conventional timing controls.

a. Consider a hypothetical design for the user interface where there is no increase in the size of the display and little change to the complexity of the controls from those currently popular on microwave ovens. Describe **TWO** ways that, in practice, users might have difficulty using a dish selection interface.

[8]

b. Describe **TWO** ways that some older people might have particular difficulty in a dish selection interface.

[8]

c. Describe how this approach might cause particular difficulties for users with disabilities, giving examples that might be relevant for different specific disabilities.

[9]

Question 5 Design scenario

Assume you have to design a mobile phone app for remote control of a home security system, including a secure repository for deliveries. With clear and specific reference to the scenario for this question:

a. Develop **TWO** design scenarios, one for handling deliveries and one for detecting a security incident and calling for emergency help.

[10]

b. Describe a strategy for recruiting test participants to evaluate a prototype design.

[8]

c. Define a test plan explaining fully how you would carry out a usability evaluation of your design.

[7]

END OF PAPER