BCS THE CHARTERED INSTITUTE FOR IT

BCS HIGHER EDUCATION QUALIFICATIONS
BCS Level 5 Diploma in IT

USER EXPERIENCE

Friday 22nd April 2022 - Afternoon

Answer any FOUR questions out of SIX. All questions carry equal marks.

Time: TWO hours

Answer any <u>Section A</u> questions you attempt in <u>Answer Book A</u>
Answer any <u>Section B</u> questions you attempt in <u>Answer Book B</u>

The marks given in brackets are **indicative** of the weight given to each part of the question.

Calculators are **NOT** allowed in this examination.

A1.

You have been asked to design part of a control panel for a safety-critical manufacturing application. Your task is to propose the size and location of the all-important 'Emergency Stop' button. It is required to be reached as quickly as possible from the user's chair in the control room.

Your client has proposed three sizes and locations:

- Option A has a size of 3cm and is 45cm away from the user.
- Option B has a size of 5cm and is 35cm away from the user.
- Option C has a size of 4cm and is 12cm away from the user.

You have suggested using Fitt's Law to select from the 3 alternatives.

a) Your client has never heard of Fitt's Law, so has asked you to give a simple explanation of it and how it might be used in user interface design.

(4 marks)

b) Use Fitt's Law to calculate T for options A, B and C, and decide which of the three alternative solutions should be chosen, based purely on time to reach or 'hit' the Emergency Stop button. You must show all your working.

Use the formula for Fitt's Law, expressed as:

$T = k\log_2(D/S+1)$

where T = time in ms, k is a constant of 200ms, D = distance to target in cm, S = size of target in cm.

Note: $\log_2(x) = n$ means $2^n = x$
e.g. $\log_2(2) = 1$, $\log_2(4) = 2$, $\log_2(8) = 3$, $\log_2(16) = 4$, $\log_2(32) = 5$

(21 marks)

A2.

Choose **ONE** of the following interactive system domains and write a brief essay describing the past, current and possible future issues for user experience. Use the PACT framework to frame your discussion.

1. Mobile apps
2. Websites
3. Wearable computers
4. Television interfaces.

(25 marks)

A3.

When conducting a user experience evaluation, many issues need to be considered.

Five of these issues are:

1. Validity
2. Ecological validity
3. Reliability
4. Bias
5. Scope.

For **each** of these issues, provide a description of their meaning, and a good and a bad example of their application.

(25 marks)

Section B
Answer Section B questions in Answer Book B

B4.

a) In UX Design we need to be very careful when using colour and symbols to convey information.

Explain why we need to do this and provide an example to illustrate your answer.

(10 marks)

b) John is a teenager who is deaf and recently became legally blind too. This means that he can only see small parts of a screen and only read text when the text is significantly enlarged.

Your team is considering ways of supporting John in order for him to be able to access content on websites. What types of solutions would you recommend to John?

(8 marks)

c) Figure 1 shows an unexpected error message. Explain whether you think this is an acceptable error message or not and justify your answer. What would you recommend to improve it?

Figure 1:
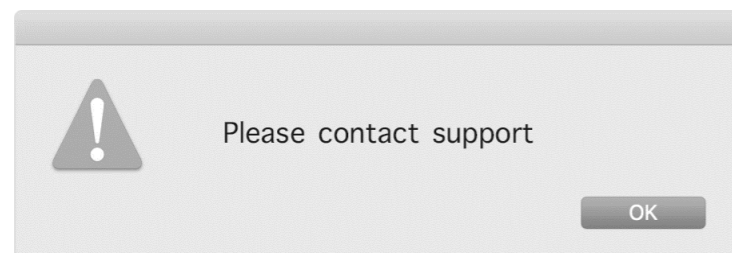
(7 marks)

B5.

a) The study of human cognition can help UX designers understand how best to design interfaces as considering humans' abilities and limitations could inform the design of technologies that extend capabilities as well as compensate for weaknesses. One of the most relevant for UX design is **attention**.

Explain **THREE** design implications when designing interfaces to help users focus on a particular task.

(8 marks)

b) Explain what we mean when we say we need to 'design for inclusion'.

(8 marks)

c) Using examples, explain **THREE** Gestalt principles/laws that are most relevant to interface design and used by UX designers to organise content.

(9 marks)

B6.

a) You are a UX designer working on a new interface to a supermarket's online shopping system. The client wants a complete redesign of the website. Your boss is not convinced of the value of using low-fidelity prototypes to explore ideas.

Provide **THREE** advantages of using low-fidelity prototypes.

(9 marks)

b) Sound is becoming an important part of interface design in mixed reality and multimodal systems.

Discuss **FOUR** advantages of using sound at the user interface.

(8 marks)

c) UX teams often use Scenarios throughout the process of designing interactive systems.

Explain briefly why Scenarios are important.

(8 marks)

End of Examination