BCS THE CHARTERED INSTITUTE FOR IT

BCS HIGHER EDUCATION QUALIFICATIONS
BCS Level 5 Diploma in IT

USER EXPERIENCE

SAMPLE PAPER

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 are working for a company that is considering introducing a brand-new system, with a novel user experience. The critical aspect of the system is the user's speed of task completion. As part of the system evaluation, you have tested a user group of 10 participants with both the old and proposed new system. The results of the test (in minutes) are given below:

Old: 10, 23, 25, 17, 20, 15, 19, 40, 33, 45

New: 6, 8, 12, 35, 29, 17, 15, 31, 28, 14

a) Using the Mann-Whitney method of data analysis, establish whether there is a significant difference between the two speeds of task completion of the systems, based on the above data. You should use the table at the end of the question to test the U-value.

(15 marks)

b) In addition to speed of task completion, you are also asked to evaluate the users' overall experience of the new system. How might you do this, and what are the issues you need to consider, in the context of User Experience (UX)?

(10 marks)

$n1\backslash n2$	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2			0	1	1	1	2	2	3	3	4	4	4	5	5	6	6	7	7
3		0	1	2	3	4	5	5	6	7	8	9	10	10	11	12	13	14	15
4	0	1	2	4	5	6	7	9	10	11	12	13	15	16	17	18	20	21	22
5	1	2	4	5	7	8	10	12	13	15	17	18	20	22	23	25	27	28	30
6	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	34	36	38
7	1	4	6	8	11	13	16	18	21	23	26	28	31	33	36	38	41	43	46
8	2	5	7	10	13	16	19	22	24	27	30	33	36	39	42	45	48	51	54
9	2	5	9	12	15	18	22	25	28	31	35	38	41	45	48	52	55	58	62
10	3	6	10	13	17	21	24	28	32	36	39	43	47	51	54	58	62	66	70
11	3	7	11	15	19	23	27	31	36	40	44	48	52	57	61	65	69	73	78
12	4	8	12	17	21	26	30	35	39	44	49	53	58	63	67	72	77	81	86
13	4	9	13	18	23	28	33	38	43	48	53	58	63	68	74	79	84	89	94
14	4	10	15	20	25	31	36	41	47	52	58	63	69	74	80	85	91	97	102
15	5	10	16	22	27	33	39	45	51	57	63	68	74	80	86	92	98	104	110
16	5	11	17	23	29	36	42	48	54	61	67	74	80	86	93	99	106	112	119
17	6	12	18	25	31	38	45	52	58	65	72	79	85	92	99	106	113	120	127
18	6	13	20	27	34	41	48	55	62	69	77	84	91	98	106	113	120	128	135
19	7	14	21	28	36	43	51	58	66	73	81	89	97	104	112	120	128	135	143
20	7	15	22	30	38	46	54	62	70	78	86	94	102	110	119	127	135	143	151

[Turn Over]

A2.

    a)   Briefly describe the PACT UX framework.

(8 marks)

    b)   Use the PACT framework to consider the UX issues that may arise in the context of a smart home system. The system will be used by a typical family (parents + children aged 7 and 11), and will include heating, lighting, door access, and home hub features.

(17 marks)

A3.

    a)   You are a UX consultant involved in a project focusing on designing a book reader device for senior citizens (i.e. people over 65 years old) new to reading a book using an electronic device. How would you go about the understanding the user needs, abilities and or limitations?

(10 marks)

    b)   As a UX consultant you are also involved in a project focusing on designing an educational application for smart devices to be used by children aged 5-7 years old. How would you go about understanding the user needs, abilities and/or limitations?

(10 marks)

    c)   Discuss why the use of paper/low fidelity prototyping is important when designing a mobile application.

(5 marks)

[Turn Over]

Section B
Answer Section B questions in Answer Book B

B4.

a) You are working in a team that wants to develop an innovative device for people with diabetes to help them record and monitor their blood sugar levels. Although there are certain products already on the market, they are sometimes viewed as large and bulky. Many people with diabetes rely on manual recording and monitoring methods such as using a finger-tip prick blood test. You are responsible for the collection of data in order to further understand the user needs, requirements and context of use.

Discuss what kind of data gathering technique(s) would be most appropriate to use (please provide **TWO** techniques), and how might these different data gathering techniques be used.

Assume that you are at the beginning of the development of the device and that you have enough time and resources to use any of the available techniques.

(10 marks)

b) Your UX team is considering two alternative early prototypes: Prototype A and Prototype B for a dashboard/control panel interface that is going to be used by approximately 50 workers in a warehouse. Most members of your team think Prototype A is a better solution but there are also some team members who are very vocal in their preference for Prototype B. What would you recommend doing in order to decide between the two prototypes?

(5 marks)

c) *"Help users recognise, diagnose and recover from errors"* – what does this mean in designing an interface? Provide an example to support your answer.

(5 marks)

d) Explain the purpose of testing a prototype with users.

(5 marks)

B5.

a) A company called GB National Trains has asked you to conduct usability testing of their mobile application (app) in order to see whether their customers can successfully book their train ticket online using the app.

What types of data (i.e. what metrics) would need to be gathered regarding usability testing to see whether the app is successful, or in case there are any problems? Please provide **THREE** types of data (i.e. three metrics).

(9 marks)

b) *"Interfaces should be designed in such way that promote recognition rather than recall"*. Provide an example to explain this principle.

(6 marks)

[Turn Over]

c) In UX design it is important that information or meaning must not be conveyed by colour only. Explain why this is important and provide an example to illustrate this.

(10 marks)

B6.
    a) Keyboard accessibility requires that your website works with a keyboard. Explain how the keyboard accessibility of a single webpage is tested.

(5 marks)

    b) What is meant by 'No Keyboard Trap'?

(5 marks)

    c) Sighted keyboard users need to be able to see where the keyboard focus is at all times. Explain what happens when the 'Visual Focus Indicator' is turned off in the CSS.

(5 marks)

    d) It is best practice to make the tab/reading order of webpages match the visual order. Explain what is meant by having a linear tab/reading order.

(5 marks)

    e) Generally opening new windows is a bad idea and one that most people would advise avoiding. Explain how opening new windows based on focus change can cause accessibility issues.

(5 marks)

END OF EXAMINATION