UNIVERSITY EXAMINATIONS

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INF3720

Human Computer Interaction

Date: January 2023
Duration: 2 hours
Total marks: 100

Examiners:
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This is a closed book examination, under IRIS invigilation. Unisa exam policy applies.

 Instructions to students
1. Answer all questions in the given order.
2. You are **not** allowed to use Mobile devices, or Calculators.
3. Students must upload their answer scripts in a single PDF file (answer scripts must not be password protected or uploaded as "read only" files.)
4. NO emailed scripts will be accepted.
5. Students are advised to preview submissions (answer scripts) to ensure legibility and that the correct answer script file has been uploaded.
6. Students are permitted to resubmit their answer scripts should their initial submission be unsatisfactory.
7. Incorrect file format and uncollated answer scripts will not be considered.
8. Incorrect answer scripts and/or submissions made on unofficial examinations platforms (including the invigilator cellphone application) will not be marked and no opportunity will be granted for resubmission.
9. Mark awarded for incomplete submission will be the student's final mark. No opportunity for resubmission will be granted.
10. Mark awarded for illegible scanned submission will be the student's final mark. No opportunity for resubmission will be granted.
11. Submissions will only be accepted from registered student accounts.
12. Students who have not utilised invigilation or proctoring tools will be subjected to disciplinary processes.
13. Students suspected of dishonest conduct during the examinations will be subjected to disciplinary processes. UNISA has a zero tolerance for plagiarism and/or any other forms of academic dishonesty.
14. Students are provided 30 minutes to submit their answer scripts after the official examination time. Submissions made after the official examination time will be rejected by the examination regulations and will not be marked.

Students experiencing technical challenges, contact the SCSC 080 000 1870 or email Examenquiries@unisa.ac.za or refer to Get-Help for the list of additional contact numbers.

Question 1   **[20 marks]**

Write the correct answer on your answer sheet. For example, 1: B.

1.1. Which design principle below is correct? (2 marks)
  a. Visibility refers to interfaces that have similar operations and use similar elements for achieving similar tasks.
  b. Feedback is an attribute of an object that allows people to know how to use it intuitively.
  c. Affordance is an attribute of an object that allows people to know how to use it intuitively.
  d. Constraints refer to interfaces that have similar operations and use similar elements for achieving similar tasks.

1.2. How do you differentiate user experience and usability? (2 marks)
  a. User experience is the way people feel about a software product, while usability means to what extent a product enables people to be highly productive in their work.
  b. Usability is the way people feel about a software product, while user experience means to what extent a product enables people to be highly productive in their work.
  c. User experience refers to the effectiveness and efficiency of a software product, while usability refers to pleasurability and satisfaction.
  d. Usability refers to the desirable aspects of a software product, while user experience refers to its learnability.

1.3. Which statement regarding Fitts' Law is correct? (2 marks)
  a. Fitts' Law is a model that uses a formula to predict user performance during interactive design evaluation.
  b. Fitts' Law is a framework used to analyse large volumes of data to provide information about how a product is used.
  c. Fitts' Law is a theory that is useful for remote testing of small differences in the UX design of an interface.
  d. Fitt's Law is a paradigm used to evaluate the UX of FitApp's user interface.

1.4. Which option is a good example of co-presence? (2 marks)
  a. Podcasts are used to stream audio-based lectures to distance education students.
  b. Video and sound with fixed cameras and microphones used for staff meetings where the participants are working from home during the COVID-19 pandemic.
  c. In a large computer lab with partitions between each student, the face of a student who is participating in a discussion is projected on all the computer screens in all the booths.
  d. A roaming robot that can hear and talk, represents a conference attendee (who is in quarantine) during a teatime networking session.

1.5. Software that simulates human attributes in a pleasurable interface is: (2 marks)
  a. An example of the use of expressive interfaces
  b. An example of design at the behavioural level
  c. An example of zoomorphism
  d. d. An example of anthropomorphism

1.6 Which one of Shneiderman's classic guidelines for error messages is violated by the following computer message: "The application Word Wonder has unexpectedly quit due to a type 2 error"? (2 marks)
  A. Error messages should be precise rather than vague.
  B. Error messages should avoid context-sensitive help.
  C. Error messages should avoid friendly cute images.
  D. Error messages should provide precise error code numbers.

1.7 The developers of a new e-reader want to find out how appealing such a device would be to undergraduate students at Unisa. Which one of the following possible questions could be used in an unstructured interview to understand the appeal of using e-readers to the target group? (2 marks)
  A. Would you like to read your INF3720 textbook using an e-reader? Answer yes or no.
  B. Do you like reading books on Google Scholar?
  C. In what format do you prefer to read books, and why?
  D. In your opinion, on a scale of 1 (very difficult) to 5 (very easy), are existing e-readers easy to handle?

1.8 The why-aspect of evaluation during interaction design is correctly described as: (2 marks)
    A. All types of systems, their workflow, aesthetic design and safety features should be evaluated.
    B. Problems should be identified and fixed before a product goes on sale to improve sales because well-designed products sell better.
    C. Evaluation of a new product or upgrade should be done during design, after implementation and during its use.
    D. Design choices can be tested in a lab while user experience aspects can be evaluated in natural settings.

1.9 Assume that you were hired by Facebook to evaluate the design concepts underlying the app. To gather information, you have decided to interview five adults, five teenagers and five senior citizens because: (2 marks)
    A. You want to be politically correct by not discriminating based on age
    B. It is important to gain an understanding of how different kinds of users may use the same software in different ways
    C. A study in-the-wild will produce better results than a laboratory study
    D. The sample of 15 is large enough to provide reliable statistical data

1.10 What is the difference between Budd's heuristics and Nielsen's (revised) set of heuristics? (2 marks)
    A. Budd's heuristics place less emphasis on information content and user experience aspects than Nielsen's heuristics.
    B. Nielsen's heuristics target the accessibility of websites for users with disabilities while Budd's heuristics focus on consistent design.
    C. Nielsen's heuristics focus exclusively on UX goals while Budd's heuristics focus exclusively on usability goals.
    D. Budd's heuristics place more emphasis on information content and user experience aspects while Nielsen's heuristics primarily focus on usability issues.

Question 2 [19 marks]

2.1 Identify the four basic activities involved in the process of interaction design. (4 marks)

2.2 Identify and briefly describe five of the goals of usability. Provide one positive or one negative comment regarding the usability of the myUnisa learning management system that you experienced for each of the goals. (15 marks)

Question 3 [10 marks]
Explain the following terms with respect to interaction design:

3.1   Problem space   (2 marks)

3.2   Conceptual space   (2 marks)
3.3   Anthropomorphism   (2 marks)
3.4   Paradigm   (2 marks)
3.5   Metaphor   (2 marks)

Question 4 [51 marks]
The School of Computing (SoC) have a small library, which is not associated with the university's main library. The SoC library has a collection of Information Systems and Computer Science textbooks and journals. The library uses an Excel spreadsheet to manage the library. The challenge is that borrowers return books late or don't return them. The borrowers include students and all School of Computing staff. You have been approached by the SoC to design a system that will help with library management, making sure that late returns and non-returned books are tracked.

Question 4.1

As an interaction designer of the new Library information systems application, you would need to collect stakeholder requirements. Identify two stakeholders and list them in the following table.   (2 marks)

	Stakeholder (1 mark per stakeholder)
1	
2	

Question 4.2

Assume that you decided to conduct interviews with stakeholders that will be involved with the library system. Discuss characteristics of unstructured interviews, structured interviews, and semi structured interviews. Give their advantages and one question that acts as an example for each type of interview in relation to the stated scenario. Provide your answer in the table below.   (6 marks)

Type of interview	Characteristics (1 mark for each)	Advantages (1 mark for each)
Unstructured interviews		
Structured interviews		
Semi- structured interviews		

Question 4.3

An Interaction designer is required to be part of a team that develops the Library information systems application. From what you learnt in this module, briefly provide the job description of an Interaction designer in point form.   (2 marks)

Point	Job description (1 mark per point)
1	
2	
3	
4	
5	

Question 4.3

When designing the Library information systems application, why does usability matter?   (1 marks)

Question 4.5

Why is it important to involve users during the design of the Library information systems application? Identify and discuss 5 valid points in the table below.   (10 marks)

	Description of the point (2 marks per valid point)
1	
2	
3	
4	
5	

Question 4.6

During the design of the Library information systems application, how would you manage the expectations and ownership of the system? Provide your answer in point form in the table below.

(10 marks)

Point	Description (2 marks per valid point)
1	
2	
3	
4	
5	

Question 4.7

There is a fine line between an interaction that works and that is usable. Designing interactions that work and usable is achievable if design principles are appropriately applied. Discuss how you would apply the following principles when designing the library information systems application.   (10 marks)

Principle	Application (2 marks each)
1. Visibility	
2. Feedback	
3. Constraints	
4. Consistency	
5. Affordance	

Question 4.8

In point form, briefly discuss five common types of requirements discovery.   (10 marks)

	Discussion (two marks per point).
1.	
2.	
3.	
4.	
5.	

The end