INF1520
RIN1520

May/June 2013

HUMAN-COMPUTER INTERACTION I

Duration   2 Hours   100 Marks

EXAMINERS
FIRST   MRS B CHIMBO
SECOND   MR MD MOTHISI   MR TJ VAN DYK

Closed book examination

This examination question paper remains the property of the University of South Africa and may not be removed from the examination venue

This paper consists of 15 pages

Instructions

1   This paper consists of two sections, Section A, 40 marks and Section B, 60 marks The final mark will be 100

2   All questions are answered on the spaces provided

3   The multiple-choice section (SECTION A, consisting of Question 1) must be answered in the table given on page 2

4   The written section (SECTION B Questions 2-5) must be answered in the spaces provided in your examination paper The marks that are awarded for each question in section B are indicated in brackets next to the question number

SECTION A MULTIPLE CHOICE QUESTIONS: Each question will count 2 marks

(Total = 20x2 = 40 marks).

ANSWER THIS SECTION IN THE TABLE PROVIDED BELOW

Question Number	Your Answer
(a)	
(b)	
(c)	
(d)	
(e)	
(f)	
(g)	
(h)	
(i)	
(j)	
(k)	
(l)	
(m)	
(n)	
(o)	
(p)	
(q)	
(r)	
(s)	
(t)	

Question 1

(a)   Application or client programs that translate user request for information into the communications primitives that are necessary to transfer relevant data from remote servers are called

1   Browsers

2   Servers

3   Supercomputers

4   Explorers

5   Social networks

(b)   Ubiquitous computing refers to

A   Computer systems that are embedded in everyday objects

B   Computing devices that can be used by two people simultaneously

C   Computer systems that become part of the environment

D   Obtrusive computing devices

Options

1   A and B

2   A and C

3   A and D

4   B and C

5   D and C

(c)   User experience refers to

A   How people feel about a product

B   One cannot design a user experience but can design for user experience

C   Designing products so that people with disabilities can use them

D   Designing products to support the way people communicate

Options

1   A and B
2   A and C
3   A and D
4   B and C
5   B and D

(d)   Which of the following statements about attention and memory are **TRUE**?

A   Attention is influenced by the way information is presented as well as by people's goals

B   Memory consists of a number of systems that can be distinguished in terms of their cognitive structure as well as on their respective roles in cognitive process

C   People are the same in terms of their attention span

D   Different authors have the same views on how memory is structured

Options

1   A and B
2   A and C
3   A and D
4   B and C
5   B and D

(e)   The difference between long term memory (LTM) and short term memory (STM) is

1   LTM store information from the immediate past and retrieval is measured in seconds or minutes, whilst STM holds information about events that happened hours, days or months ago

2   STM store information from the immediate past and retrieval is measured in seconds or minutes, whilst LTM holds information about events that happened hours, days or months ago

3   LTM has a relatively short retention period, whilst STM has a long retention period and a high capacity

4   In line with general LTM capacity, seven is often regarded as the 'magic number' in HCI, whilst STM capacity has none

TURN OVER

5   An important aim for user interface design is to increase the load on STM and reduce the load on LTM

(f)   Reasons given by Henry (2002) for designing systems that are accessible to people with disabilities are

A   Cost saving

B   Compliance with regulatory and legal requirements

C   Exposure to few people

D   Better design and implementation

Options

1   A and B

2   A and C

3   A and D

4   A, B and D

5   A, B, C and D

(g)   A kind of slip that occurs when an activity that you perform frequently is done instead of the intended activity is known as

1   Capture errors

2   Description errors

3   Data-driven errors

4   Mode errors

5   Loss-of-activation errors

(h)   Which of the following are principles of good interface design?

A   Affordance

B   Constraints

C   Cluttering

D   Mapping

E   Visibility

Options

1   A, B, C and D

2   A, B, D and E

3   A, C, D and E

4   B, C, D and E

5   B, D and E

(i)   On key pads (such as those of a cellular phone or telephone) the lower numbers appear
       at the top and the higher numbers at the bottom The numbers on the control panel of a lift
       are, however, organised with the lower numbers at the bottom and the higher numbers at
       the top, reflecting the position of the floors of the building This is an example of

1   Affordance

2   Natural mapping

3   Cultural constraint

4   Feedback

5   Inconsistent design

(j)   The principle that refers to the many ways in which interaction between the user and the
       system can take place is called

1   Learnability

2   Flexibility

3   Robustness

4   Usability

5   User experience

(k)   Which of the following principles affect learnability?

A   Responsiveness

B   Customisability

C   Consistency

D   Predictability

Options

1   A and B

2   A and C

3   B and C

4   B and D

5   C and D

(l)   Techniques that can help in reducing errors by ensuring complete and correct actions are

A   Correct dimensions

B   Correct matching pairs

C   Complete sequences

D   Correct comments

Options

1   A and B

2   B and C

3   A and C

4   B and D

5   C and D

(m)   Standards for interactive design are usually set by national or international bodies to ensure compliance with a set of design rules by a large community. Which of the following are the benefits of standardization in interface design?

A   Providing a common terminology

B   Facilitates program maintenance and for additional facilitates to be added

C   Reduces training needs because knowledge can be transferred between standardized systems

D   Putting aesthetics above usability

Options

1   A, B, C, and D

2   B, C and D

3   A, B and D

4   A, C and D

5   A, B and C

(n)   Which of the following is **NOT** a type of an interface?

1   Speech interface

2   Mobile interface

3   Tangible interface

4   Modal interface

5   Robotic interface

(o)   Functions of prototypes are

A   They provide a way to test out different design ideas

B   They act as a communication medium within the design team

C   They help users to choose between alternative designs

D   They act as a communication medium between designers and users

Options

1   A, B, C and D

2   A, B and C

3   B, C and D

4   A, B and D

5   A, B, C and D

(p)   Descriptions that are **TRUE** about high-fidelity prototypes are

A   They can be adapted very quickly at a low cost

B   They resemble the final system and usually use the same material that would be used in
     the final product

C   They are usually thrown away when they served their purpose

D   They take too long to build

Options

1   A, B and C

2   A, B and D

3   A and C

4   B and D

5   A and D

(q)   Which of the statements are true of interface metaphors?

A   A good metaphor will always appeal to users of all ages

B   Metaphors can turn something that is potentially boring into an engaging experience

C   The purpose of a metaphor is to provide a familiar structure for interaction

D   The users should be allowed to apply aspects of the metaphor to the system even if these
      aspects are not relevant to the interface

Options

1   A, B, C and D

2   A, B and C

3   B, C and D

4   B and C

5   A and C

(r)   The steps in the process of heuristic evaluation are

A   Introduction

B   Briefing

C   Evaluation

D   Debriefing

Options

1   A, B, and C

2   A, B , and D

3   A, C, and D

4   B, C and D

5   B and D

(s)   A program that sends a copy of itself to everyone listed in your e-mail address book and
       replicates and sends itself out to everyone listed in each of the receiver's address book

1   Worm
2   Cracker
3   Time bomb
4   Trojan horse
5   Eavesdropper

(t)   Which of the following statements about social networking technology is **TRUE**?

1   It makes it more difficult for socially awkward people to communicate with others
2   It saves time
3   It provides an easy and free way to create an Internet presence
4   It provides adequate mechanisms to secure privacy, especially if users are not aware of
       the threats to privacy
5   It prevents the distribution of propaganda

TURN OVER

SECTION B· SHORT QUESTIONS 60 MARKS
ANSWER THIS SECTION IN THE SPACES PROVIDED BELOW

Question 2   [8]

Question 2.1   (2)

A usability principle that refers to the resources expended in relation to the accuracy and completeness of goals achieved is called_____.

Question 2 2   (6)

a)   Define 'interaction' as used in human computer interaction

_____

_____

_____

b)   Name and then distinguish between the **TWO** main types of interaction

_____

_____

_____

_____

_____

_____

_____

TURN OVER

Question 3   **[20]**

Question 3.1   **(6)**

Name and describe **THREE** aspects of colour that affect the visual accessibility of a design

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Question 3 2   **(6)**

Identify **THREE** devices that can be used by users with motor impairments to interact with computer systems effectively

I _____

II _____

III _____

Question 3.3   **(4)**

What is the difference between internal consistency and external consistency?

_____

_____

_____

_____

_____

_____

_____

Question 3.4 (4)

Describe **TWO** approaches that designers follow when they create designs that consider language or culture groups characteristics

I _____

_____

_____

_____

II _____

_____

_____

Question 4 [24]

Question 4.1 (6)

Name **THREE** forces that work against evolutionary design

I _____

II _____

III _____

Question 4.2   **(10)**

Provide one word for each of the following definitions

Definition	Word
1 A mechanism that restricts the allowed behaviour of a user when interacting with a computer system	
2 A type of a physical constraint that requires one action before the next can take place	
3 Information that is sent back to the user about what action has been performed and the results of the action	
4 The ease with which users can enter a new system and reach a maximum level of performance	
5 Refers to the level of support the user is given for successful achievement and assessment of their goals	

Question 4.3   **(8)**

List **FOUR** disadvantages of cluttering interfaces

I _____

_____

II _____

_____

III _____

_____

IV _____

_____

TURN OVER

Question 5   **[8]**

Question 5 1   **(4)**

Give **FOUR** advantages of low fidelity prototyping

I _____

_____

II _____

_____

III _____

_____

IV._____

_____

Question 5.2   **(4)**

Give the **FOUR** consequences of the vast increase in the information processing power of modern computers

I _____

_____

_____

II _____

_____

_____

III _____

_____

IV._____

_____

****