



CRAWFORD UNIVERSITY FAITH CITY IGBESA
COLLEGE OF NATURAL AND APPLIED SCIENCES
DEPARTMENT OF COMPUTER AND MATHEMATICAL SCIENCES
COURSE CODE: CSC/ICT 306 COURSE TITLE: HUMAN COMPUTER INTERACTION
SESSION: 2021/2022 TIME: 2½ HOURS

Instruction: Answer Question One and any other Three

Question One

- a. When simple things need pictures, labels, or instructions, the design has failed. What makes up a good design? Support your answer with a valid scenario **5marks**
- b. Differentiate between real and perceived affordances with an example each **3marks**
- c. What are constraints? Mention the types of constraints that can aid good design **3marks**
- d. Compare and contrast between the structure of a human and computer memory **4marks**
- e. List the factors that contribute to usability of a system **5marks**
- f. Differentiate between interaction and interface design **2marks**
- g. In usability engineering life cycle, prototyping is one of the stages involved in the cycle. Differentiate between the types of prototypes. **4marks**
- h. State the HCI implementation support tools with an example each **4marks**

Question Two

The Management of Crawford University Nursery and Primary School (CUNPS) has decided to develop a state-of-the-art Interactive facility for a Science Museum to be used by children. The facility will provide learning activities and games on scientific subjects

- a. List the possible stakeholders of this system **2marks**
- b. Explain why a combination of ethnography and prototyping is useful for the requirements elicitation process **2marks**
(Hint: Ethnography is the study of people and culture with their customs, habits, and mutual differences)
- c. Explain, with examples, the difference between functional requirements and non-functional requirements of the museum. **6marks**

Question Three

Visual disabilities impair people's vision, hinders their regular day activities and also affect their interactions with devices such as computers, phones etc.

- a. What problems do users with visual impairments and learning difficulties face **2marks**
- b. What are the various means by which support can be provided for users with those impairments. **5marks**
- c. As a User-Centered Developer (UCD), state the best support tool(s) that can be deployed in an educative environment for the visually impaired. **3marks**

Question Four

The departments of Computer Science and Mass Communication has agreed to setup an augmented reality (static) public billboard so that people within the campus can see and modify an enhanced view, for example adding and editing caption text or speech bubbles over their personalised view of the billboard. Whichever type of device is used, users should be able to control the application either using hand gestures or gaze control.

- a. What is the minimum AR required to setup the interactive billboard? **4marks**
- b. Pick a model and enumerate how this model can be used to develop the application of the billboard and that of user's devices. **6marks**

Question Five

Bran Computer Interface (BCI) technology can be used to save the lives of people with neuron-deficiencies. A couple of students have been identified with memory or learning issues, problems with internal body clock, depression and lots more.

- a. Explain how invasive and non-invasive BCI can be deployed to help these students cope with studies. **6marks**
- b. What are the challenges that can be encountered using either invasive or non-invasive **4marks**

Question Six

You have been assigned the role to develop an application that will provide smart environment for Crawford University Campus in order for new students to familiarise themselves with the school environment.

- a. Explain the concept of visual search **2marks**
- b. What methods of visualisation will you suggest in the development of the smart environment? **4marks**
- c. State two (2) advantages and disadvantages of information visualisation **4marks**

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