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*(Knowledge for development)*

**KIBABII UNIVERSITY  
(KIBU)**

**UNIVERSITY EXAMINATIONS  
2017/2018 ACADEMIC YEAR**

**END OF SEMESTER EXAMINATIONS  
YEAR FOUR SEMESTER ONE EXAMINATIONS**

**FOR THE DEGREE OF  
BACHELOR OF SCIENCE  
(INFORMATION TECHNOLOGY)**

**COURSE CODE : BIT 414**

**COURSE TITLE : HUMAN COMPUTER INTERACTION**

**DATE: 21/12/2017**

**TIME: 11.3. A.M- 1.30P.M**

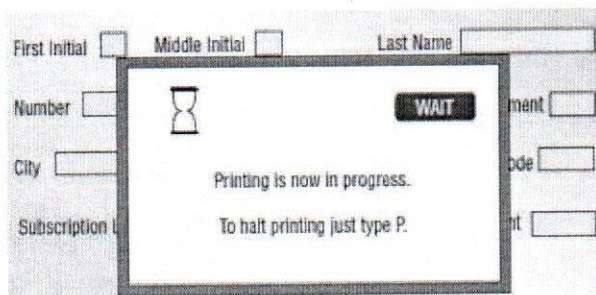
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**INSTRUCTIONS TO CANDIDATES**

**ANSWER QUESTION ONE AND ANY OTHER TWO.**

### QUESTION ONE [30 MARKS]

- (a) (i) Define Human Computer Interaction as according to ACM [2 marks]  
(ii) Describe any four HCI research themes as outlined by the IBM, computer and accompaniment devices manufacturer [8 marks]
- (b) Briefly explain how the following research models have contributed to better designs in computer applications:
- (i) Predictive and intelligent user interface technologies [2 marks]  
(ii) Mobile and ubiquitous computing [2 marks]  
(iii) Social and collaborative computing [2 marks]  
(iv) Interactive visualization and visual analytics [2 marks]
- (c) State any four features experts will consider during evaluation of an interface [4 marks]
- (d) Two important terms that fulfils the designer's ego in *HCI* and satisfaction are "*usability*" and "*functionality*". With relevant examples for each, briefly describe the two terms. [4 marks]
- (e) Study the system-oriented output below and explain any two advantages it has on a user? [4 marks]



### QUESTION TWO [20 MARKS]

- (a) Using relevant examples, briefly give the meaning of the following Golden Rules for better *HCI* designs as outlined by *Shneiderman*: [8 marks]
- (i) Strive for consistency  
(ii) Cater to Universal Usability  
(iii) Offer Informative feedback  
(iv) Design Dialogs to yield closure  
(v) Prevent Errors  
(vi) Permit easy reversal of actions  
(vii) Support internal locus of control  
(viii) Reduce short term memory load
- (b) Write brief notes to distinguish between "*Experiential cognition*" and "*Reflective cognition*" modes as generalized by *Noman* (1993) [4 marks]

- (c) Explain any four guidelines that should be adhered to when using *colour* in a user interface design [8marks]

**QUESTION THREE [20 MARKS]**

- (a) Outline any three techniques to be used when carried analysis for the design and implementation of a user interface [6 marks]
- (b) Give four stages involved in the process of UC/ID design for *HCI* [4 marks]
- (c) Cognitive psychology characterizes human as information processors. Identify four features that qualify human as an information processor. [4 marks]
- (d) Basic idea indicates that information enters and exit human mind through a series of ordered processing stages: “*Sensory Store*”, “*Short term memory (working memory)*” and “*Long term memory (Permanent Memory)*”. Using relevant examples described the three terms as applied in User Designs (ID) [6 marks]

**QUESTION FOUR [20 MARKS]**

- (a) What is Visual analytics? [2 marks]
- (b) What is User Interface evaluation? [2 marks]
- (c) State any four Interactive Devices currently available to the user under *HCI* [4 marks]
- (d) State two advantages of the following interactive styles.
- (i) Graphical manipulation [2 marks]
  - (ii) Menu Driven [2 marks]
  - (iii)Form filing [2 marks]
  - (iv)Questions and answer [2 marks]
- (e) Discuss the characteristics of a usable system [4 marks]

**QUESTION FIVE [20 MARKS]**

- (a) Most systems highly depend on inbuilt interfaces within the system and working harmoniously for the intended goal. With User Interface Designs contextual application, outline step-by-step the stages involved in the system development life cycle (SDLC) [10 marks]
- (b) A staff of Kibabii University, School of Computing and Informatics has developed a human computer interaction tool to be used by visually challenged students in the universities. In your knowledge as a HCI student, help the staff achieve the goals intended by answering the following questions:
- (i) **Name and explain** three experts to be used in the evaluation of the tool? [6 marks]
  - (ii) How can we achieve the usability measurement of the tool -(*Interface*)? [4 marks]