



# THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

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**MAIN EXAMINATION**

**JANUARY – APRIL 2015 TRIMESTER**

**FACULTY OF SCIENCE**

**DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE**

**REGULAR PROGRAMME**

**CMT 401: HUMAN COMPUTER INTERFACE**

<b>Date: APRIL 2015</b>	<b>Duration: 2 Hours</b>
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<b>Instructions: Answer Question ONE and any other TWO Questions.</b>
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- Q1. a) While designing any kind of artifacts, how would cater for short term memory? **(4 marks)**
- b) Differentiate between Technology driven and user centered design as used in HCI. **(4 marks)**
- c) A group of system analysts came up with the following description about CUEASO voting procedure. The procedure shall be used to implement an automated system.  
“Before student can vote, they need to login in to the system. This involves supplying user and password then login in. If the users lack a valid account with the system, they are required to create a new one by filling in their details then create account. After successful login, the users can open the voter module, vote for all candidates. Before voting the system is supposed to provide a summary of select choice. If users are ok that the choice they intended to make, they can vote and log out from the system. Else, they can refine their choices the complete the process.”
- Required:  
Perform a task analysis using HTAs diagram. **(10 marks)**
- d) Differentiate between localization and internationalization as used in HCI. Use valid examples to explain your answers. **(4 marks)**

- e) Designing system that can be termed as “universal” is one of the challenges facing designers making global solutions. One assumption these designers make is that the users maybe operating in contexts different from own. Critically discuss three of these “different contexts” and how web designers can take care of them. **(6 marks)**
- f) What is meant by a location aware system? Provide an example of such a system and highlight what makes it location aware. **(2 marks)**
- Q2. a) The process of optimizing a desktop site for mobile viewing is not smooth road for designers. Mobile designers as opposed to their counter parts face a number of limitations critically. Discuss four of these challenges and any four design practices to overcome each of the challenge outlined. **(16 marks)**
- b) With respect to Donald Norman model, explain what the following terms mean.
- i) Gulf of execution
  - ii) Gulf of evaluation.
- (4 marks)**
- Q3. You are in the process of implementing a web solution dubbed as “The Kenyan malls online.” The solution should provide information to its users about the malls found in Kenya, the services provided by each. The solution should provide the following key functionality/information.
- Allow users find a mall using the search facility of by clicking on the mall link.
  - Allow users to create accounts. After creating account users should be able to get notification about how services and products from the store.
  - Allow users to locate a given mall using the google maps
- Using an Hcl led approach, trace parts of the initial and detailed design focusing on the following concepts.
- a) User profile Analysis **(4 marks)**
  - b) Task analysis and decomposition (using use case of HTA) **(11 marks)**
  - c) Vertical prototyping **(2 marks)**
  - d) Inclusive design **(3 marks)**
- Q4. a) Making interfaces that have international “look and feel” is one of the most daunting task for designers. Critically discuss any three facts which make this the case and highlight the solutions which modern user interface toolkits provide to designers to easen there above challenges. **(12 marks)**

- b) Hcl is referred to as a multidisciplinary. Critically discuss why this is the case by using valid examples. **(5 marks)**
- c) Explain the importance of cognitive psychology while designing artifacts. **(3 marks)**
- Q5. a) Using the Goms model, explain how you would achieve the task of finding an item name "tablets" from E-bay online store. **(10 marks)**
- b) Explain any three rationale behind designing web solutions which are inclusive. **(6 marks)**
- c) After designing our artifacts, the final thing is to evaluate them to compare how effective they are close to end user requirements. Critically describe any two techniques that does not involve the users during the evaluation. **(4 marks)**

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