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University Examinations 2013/2014

FOURTH YEAR, FIRST SEMESTER EXAMINATION FOR THE DEGREE IN BACHELOR OF
SCIENCE IN COMPUTER SCIENCE

ICS 2402 – USER INTERFACE ARCHITECTURE

DATE: APRIL 2014

TIME: 2 HOURS

INSTRUCTIONS: Answer question *one* and any other *two* questions

QUESTION ONE – 30 MARKS

- (a) Define the term user interface. (2 marks)
- (b) State and briefly describe the two roles played by a user interface in a software system. (4marks)
- (c) Briefly describe the following terms as used with user interfaces.
 - (i) Typography (2marks)
 - (ii) Wire framing (2marks)
 - (iii) Usability (2marks)
 - (iv) Prototyping (2 marks)
 - (v) Attitude (2 marks)
- (d) Distinguish between user-centered design and goal-oriented design (2 marks)
- (e) Briefly describe the Motif programming model and the widgets concept. (5 marks)
- (f) Briefly describe the visual works application model for interface design. (5 marks)
- (g) Give two areas where text controls may be used in a user interface. (2 marks)

QUESTION TWO –20 MARKS

(a) Briefly describe the following types of user interfaces.

- i. Object –oriented user interfaces (3 marks)
- ii. Direct manipulation user interfaces (2 marks)
- iii. Function oriented user interfaces (2 marks)
- iv. Web based user interfaces (2 marks)
- v. Command line interfaces (2 marks)

(b) You are contracted to design a User Interface for a system that is used for student course registration. The system takes the student’s admission number and displays the names. It then allows the student to select five courses to register for. Each time a student selects the course code, the system displays both the course code and course title. Once through, the student submits the registration, and prints a registration form for signing.

- i. Identify three user interface design elements you may use, and where each is applicable. Justify the choice you make. (6 marks)
- ii. Other than the interface objects, outline three considerations that you may have, to improve interaction. (3 marks)

QUESTION THREE – 20 MARKS

- (a) Outline the ten fundamental principles of user interface design. (10 marks)
- (b) The humble view approach to interface design is based on the humble object concept. Briefly describe the presentation model and how it implements the humble view concept. (5 marks)
- (c) Describe the application of Model view controller architecture in the design of user interfaces. (5 marks)

QUESTION FOUR – 20 MARKS

- (a) State and briefly describe any five user interface elements used in Motif. (10 marks)
- (b) Describe the forms and controls architecture for user interface design and how it may be applied in the design of user interfaces. (5 marks)
- (c) Discuss how you would apply the principle of minimization in visual language to generate effective user interfaces. (5 marks)

QUESTION FIVE – 20 MARKS

- (a) A typical user centered design process for a web application involves five steps. Briefly describe these five steps. (10 marks)
- (b) Briefly describe the four main approaches to interaction design. (8 marks)
- (c) How would you apply color and texture to improve the user experience when using an interface? (2 marks)