



THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

A. M. E. C. E. A

MAIN EXAMINATION

MAY – JULY 2016 TRIMESTER

FACULTY OF SCIENCE

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

REGULAR PROGRAMME

DIT 015: SOFTWARE ENGINEERING

P.O. Box 62157
00200 Nairobi - KENYA
Telephone: 891601-6
Fax: 254-20-891084
E-mail: academics@cuea.edu

Date: JULY 2016

Duration: 2 Hours

INSTRUCTIONS: Answer Question ONE and ANY OTHER TWO Questions

- Q1. a) Define the following terminologies as used in software engineering
- i CASE Tool
 - ii Software **(4 marks)**
- b) What is your understanding of software engineering and why is it important. **(4 marks)**
- c) The fundamental notions of software engineering are universally applicable to all type of software development. What are the attributes of a good software. **(8 marks)**
- d) What are the key challenges facing software engineering? **(6 marks)**
- e) As a software engineer you must accept that your job involves wider responsibilities than simply application of technical skills. You must behave in an ethical and morally responsible way. Identify some of the professional responsibilities of a software engineer. **(4 marks)**
- f) A software process consists of activities involved in development of a software product. Briefly explain the FOUR activities that are fundamental to software engineering. **(4 marks)**
- Q2. a) What is a system? **(2 marks)**

- b) Briefly explain the principal stages of the **waterfall model** using a well labeled diagram. **(10 marks)**
- c) A good project management is essential for any project success. What are the key roles of a project manager in a software development project. **(6 marks)**
- d) Risk management is concerned with identifying risks and drawing up a plan to minimize their effect on a project. Identify and give examples of any TWO types of risks that an organization can encounter during a software development project. **(2 marks)**
- Q3. a) Differentiate between functional and non functional requirements. **(4 marks)**
- b) A software requirement document is an agreed statement of the system requirements. List down the requirement document structure. **(8 marks)**
- c) Context models are used to illustrate the boundaries of a system. Using your knowledge of how a ATM is used draw a context diagram to illustrate an ATM system. **(6 marks)**
- Q4. a) Define the following terminologies
 i Prototyping
 ii Real-time software design
 iii Software validation **(6 marks)**
- b) What are the benefits of prototyping **(4 marks)**
- c) Testing is important in all system development process as it demonstrates that a system meets its functional and non-functional requirements, as well as, defect that have been introduced during development process. Briefly discuss the different testing processes used in software development. **(10 marks)**
- Q5. a) What are the key factors to consider when selecting a conversion strategy for a new system. **(6 marks)**
- b) Suppose you are installing a new pay roll system in a very large multinational organization. What conversion would you use and why? **(4 marks)**
- c) Discuss the issues that a project manager must consider when assigning programming task to the programmers. **(4 marks)**

- d) What is the most common mistake made by system analysts in preparation of user documentation. **(4 marks)**
- e) What do you understand by the term risk management in software engineering. **(2 marks)**

END