



THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

A. M. E. C. E. A

MAIN EXAMINATION

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AUGUST – DECEMBER 2018 TRIMESTER

FACULTY OF SCIENCE

DEPARTMENT OF COMPUTER AND LIBRARY SCIENCE

REGULAR PROGRAMME

DIT 015: INTRODUCTION TO SOFTWARE ENGINEERING

Date: DECEMBER 2018

Duration: 2 Hours

INSTRUCTIONS: Answer Question ONE and any other TWO Questions

- Q1 a) Define the following terms.
- i) Software **(2 marks)**
 - ii) Software Process **(2 marks)**
 - iii) Software Engineering **(2 marks)**
 - iv) Software Process Model **(2 marks)**
- b) Draw a well labelled diagram that illustrates the waterfall model of software development and give a brief description of each of the phases in the model. **(10 marks)**
- c) Explain four qualities you will desire to see in a software engineer. **(4 marks)**
- d) Portability is one of the basic attributes that every software engineer wishes to have in their software. Explain any four techniques that will enable the designer to construct portable software. **(8 marks)**
- Q2. a) What do we mean by the following terms?
- i) Prototyping **(2 marks)**
 - ii) CASE **(2 marks)**
- b) Explain the four-step prototyping model of software development with the help of a flowchart. **(6 marks)**
- c) Explain any three benefits that accrue from the use of CASE tools. **(6 marks)**

- d) Why is it important to document the testing of a software system? **(4 marks)**
- Q3. a) Discuss the role of the following items in program development.
- i) Compiler. **(2 marks)**
 - ii) Application Generator. **(2 marks)**
 - iii) Text editor **(2 marks)**
- b) With the help of a diagram, explain the three stages in the life of software. **(6 marks)**
- c) List and explain any eight items of documentation that should be produced for software product. **(8 marks)**
- Q4. a) i) What do we mean by outsourcing? **(2 marks)**
- ii) Explain two advantages of outsourcing IT services. **(4 marks)**
 - iii) Explain two disadvantages of outsourcing IT services. **(4 marks)**
- b) Explain any two approaches used to change from one system to another with the help of diagrams. **(6 marks)**
- c) Identify any four characteristics of a good software design. **(4 marks)**
- Q5. a) What do we mean by the following terms?
- i) Recursion **(2 marks)**
 - ii) Malleability **(2 marks)**
- b) Explain alpha and beta testing in software validation. **(4 marks)**
- c) Explain the following terms as applied in software engineering. What is their relevance in software design?
- i) Module cohesion **(3 marks)**
 - ii) Module coupling **(3 marks)**
- d) Software requires maintenance during its life. Briefly explain the difference between corrective, perfective and adaptive maintenance. **(6 marks)**

END