



MACHAKOS UNIVERSITY

University Examinations for 2016/2017

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND YEAR FIRST SEMESTER EXAMINATION FOR DIPLOMA IN
INFORMATION COMMUNICATION AND TECHNOLOGY

PRINCIPLES OF SOFTWARE ENGINEERING

DATE: 29/5/2017

TIME: 2:00 – 4:00 PM

INSTRUCTIONS

Answer Questions ONE and Any Other Two Questions

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Differentiate between user and system requirements. (4 marks)
- b) Outline the following types of software. (4 marks)
 - i. System software
 - ii. Application software
 - iii. Embedded software
 - iv. Engineering/Scientific software
- c) Explain any three characteristics of good software. (6 marks)
- d) Outline the procedures involved in waterfall model. (6 marks)
- e) Outline any four factors that can be used in estimating the cost of any software project. (4 marks)
- f) Explain two software project estimation techniques available in the software engineering field today. (4 marks)
- g) Define the term software scope as used in software development. (2 marks)

QUESTION TWO (20 MARKS)

- a) Explain three key challenges facing software engineering in the I.C.T sector today. (6 marks)
- b) Explain two types of software maintenance measures. (4 marks)
- c) Differentiate between quality assurance and quality control as used in software engineering. (4 marks)
- d) Discuss three change-over techniques as used in project implementation. (6 marks)

QUESTION THREE (20 MARKS)

- a) Define top-down and bottom-up design models as used in software engineering. (4 marks)
- b) Explain the following terms as used in software engineering.
- i. Stakeholder; (2 marks)
 - ii. Verification; (2 marks)
 - iii. Concurrency. (2 marks)
- c) Outline four skills that a software developer must possess. (4 marks)
- d) Outline four project management tools (4 marks)
- e) Define the term system engineering. (2 marks)

QUESTION FOUR (20 MARKS)

- a) Explain two ways that can be used to determine the size of software product. (4 marks)
- b) Explain why highly reliable systems tend to be less efficient (4 marks)
- c) Discuss three ways of ensuring software quality. (6 marks)
- d) Explain the following types of models as used in Software Development Life Cycle.
- i. Big bang model (2 marks)
 - ii. Waterfall model (2 marks)
 - iii. Iterative model (2 marks)

QUESTION FIVE (20 MARKS)

- a) Explain four types of software maintenance measures carried out on a software product. (8 marks)
- b) Define the term critical path as used in software project management. (2 marks)
- c) Discuss the following activities as used in Software Management Activities.
- i. Project Planning (2 marks)
 - ii. Scope Management (2 marks)
 - iii. Project Estimation (2 marks)
- d) Explain the following types of tests as used in system testing.
- i. performance test, (2 marks)
 - ii. acceptance test, (2 marks)