



MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SPECIAL/SUPPLEMENTARY EXAMINATION FOR

DIPLOMA IN INFORMATION AND COMMUNICATION TECHNOLOGY

PRINCIPLES OF SOFTWARE ENGINEERING

DATE: 24/3/2021

TIME: 8.30-10.30 AM

INSTRUCTIONS

Attempt Question one and any other

QUESTION ONE (30 MARKS)

- a) Differentiate between computer software and computer program. (4 marks)
- b) Define the terms as used in software development.
 - i. Concurrency (2 marks)
 - ii. Software engineering. (2 marks)
- 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. Validation; (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) Define the term software project management. (2 marks)
- c) Discuss four ways of ensuring software quality. (8 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)