



MACHAKOS UNIVERSITY

University Examinations for 2018/2019

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (COMPUTER SCIENCE)

SCO 203: SOFTWARE TESTING AND QUALITY ASSURANCE

DATE: 2/5/2019

TIME: 2.00-4.00 PM

INSTRUCTIONS

Answer **question ONE** and any other **TWO** questions.

QUESTION ONE (30 MARKS)

- a) Define the following terms
 - i. Unit Testing (1 mark)
 - ii. Integration Testing (1 mark)
 - iii. Acceptance Testing (1 mark)
 - iv. Black Box Testing (1 mark)
 - v. White Box Testing (1 mark)
- b) Briefly explain Quality Assurance (QA) monitoring and Evaluation (6 marks)
- c) Briefly explain software metrics as indicator of reliability and quality. (9 marks)
- d) Describe the following
 - i. Validation (2 marks)
 - ii. Verification Control (2 marks)
 - iii. Cost of Quality (2 marks)
 - iv. Standard (2 marks)
 - v. Quality Control (2 marks)

QUESTION TWO (20 MARKS)

- a) Briefly explain the generic view of software production process. (5 marks)
- b) Construct a software process framework with a set of software engineering actions and the associated software engineering products. (10 marks)
- c) Describe the guidelines of writing software requirements (5 marks)

QUESTION THREE (20 MARKS)

- a) As a software developer, you are assigned the task of gathering user requirements for the software project you just won. State and explain any three problems you may encounter in developing a requirements document in natural language such as English. (6 marks)
- b) Briefly explain FIVE stakeholders involved in Systems Development and testing (10 marks)
- c) You have been appointed as a software quality assurance personnel in a software industry. You have been requested to give a speech on software quality and assurance. Explain the ANY 4 metrics associated to software quality? (4 marks)

QUESTION FOUR (20 MARKS)

- a) Why are DFDs necessary during software design (4 marks)
- b) The company you work for develops internet applications. To reduce time to market, the company is considering dispensing altogether with integration testing. Instead, the company plans to rely on Beta testing, in which free trial versions of new software will be sent to existing, trusted customers to try out, with the agreement that they will report any problems they encounter. What are the advantages and disadvantages of this approach? (4 marks)
- c) differentiate between the following terms (12 marks)
 - i. Blackbox and Whitebox testing
 - ii. Load and Stress testing
 - iii. Verification and Validation
 - iv. Fault and Defect
 - v. Software and Program
 - vi. Business Acceptance Testing (BAT) and User Acceptance Testing (UAT)

QUESTION FIVE (20 MARKS)

- a) Describe the TWO known process models for Software Testing (10 marks)
- b) Describe the meaning of the following terms as used in Software Testing
 - i. Failure (2 marks)
 - ii. Error (2 marks)
 - iii. Fault (2 marks)
 - iv. Defect (2 marks)
 - v. Regression Testing (2 marks)