MACHAKOS UNIVERSITY

University Examinations for 2021/2022

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND YEAR SPECIAL / SUPPLEMENTARY EXAMINATIONS FOR

BACHELOR OF SCIENCE MATHS AND COMPUTER SCIENCE

SCO203: SOFTWARE TESTING AND QUALITY ASSURANCE

DATE: 25/8/2022   **TIME: 8.30-10.30 AM**

INSTRUCTIONS:

Attempt Question One and **Any Other Two** questions in this paper

QUESTION ONE (30 MARKS)

a) Distinguish between black box test and white box test.   (4 marks)

b) Briefly explain Quality Assurance monitoring and Evaluation   (6 marks)

c) Explain four activities involved in process of Quality Assurance   (6 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)

e) State four stages of software development.   (4 marks)

QUESTION TWO (20 MARKS)

a) Briefly explain the generic view of software production process.   (10 marks)

b) Construct a software process framework with a set of software engineering actions and the associated software engineering products.   (10 marks)

QUESTION THREE (20 MARKS)

a)   The following is the definition of software quality. Fill the gap with appropriate words

(4 marks)

Software quality has been defined as conformance to …i…… stated functional and…..ii…. requirements, explicitly documented development …..iii…., and characteristic that are expected of all….iv… developed software.

b)   The figure below shows McCall's software quality factors. Study it and complete the table.

(6 marks)

Product	Quality factors
Product revision	Maintainability
	i…………………….
	ii…………………….
Product Transition	Portability
	iii…………………….
	Interoperability
Product Operations	iv…………………….
	v…………………….
	Efficiency
	Integrity
	Usability

c)   Explain two set of guidelines for formal technical reviews.   (4 marks)

d)   Software quality assurance is comprised of variety of tasks associated with seven major activities. Complete the activities shown below

   i)   Application of technical methods

   ii)   Conduct of formal technical review

   iii)   …………………   (2 marks)

   iv)   Enforcement of standards

   v)   ………………..   (2 marks)

   vi)   …………………   (2 marks)

   vii)   Record keeping

QUESTION FOUR (20 MARKS)

a)   Discuss the FIVE views of Quality according to Kitchenham and Pfleeger's article   (10 marks)

b)   Describe the Capability Maturity Model (CMM) as a Quality Assurance Model   (10 marks)

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)