



MACHAKOS UNIVERSITY

University Examinations for 2022/2023 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (MATHEMATICS AND COMPUTER SCIENCE)

BACHELOR OF SSCIENCE (COMPUTER SCIENCE)

SCO203: SOFTWARE QUALITY ASSURANCE AND TESTING

DATE: 20/4/2023

TIME: 11:00 – 1:00 PM

INSTRUCTIONS: Answer Question ONE and other TWO Questions

QUESTION ONE (30 MARKS)

- a) Define software quality (2 marks)
- b) Analyse **three** goals of software quality assurance (6 marks)
- c) Jacob registered and started a software company, the company was to deal with Health Record Management System. As a quality assurance expert, advise Jacob on **four** fundamental points to bear in mind about quality. (8 marks)
- d) Differentiate Quality Assurance and Quality Control. (4 marks)
- e) Discuss **two** categories of quality factors according to McCall (4 marks)
- f) Analyse **three** types of software testing stating their importance in determining software quality. (6 marks)

QUESTION TWO (20 MARKS)

- a) You have been contracted as a SQA consultant at NHIF. The top management has asked you to give a presentation on software quality assurance to all staff. Prepare a presentation on the **four** classifications of software quality measures. (8 marks)
- b) Discuss **four** software quality management roles (8 marks)
- c) Analyse **two** ways in which Software quality management can be realized (4 marks)

QUESTION THREE (20 MARKS)

- a) Microsoft company has specialized in producing off-shelf software over a wide range of areas. Microsoft has been an icon in the software industry for over 20 years. Discuss **four** quality assurance activities that are involved in guaranteeing sustained market presence. (8 marks)
- b) When companies employ total quality management, there are obvious benefits which are realised. Analyse **four** characteristics that successful TQM companies have. (4 marks)
- c) Analyse **four** roles of management to ensure quality of software products (8 marks)

QUESTION FOUR (20 MARKS)

- a) Define software quality metrics (2 marks)
- b) With clear examples, differentiate between CRUD testing and JAD (6 marks)
- c) Discuss **three** quality management activities (6 marks)
- d) A new software start-up business has gone into contract with an independent power production company to develop load-balancing software for them. The company has consulted you to undertake performance testing for the software before full deployment. Discuss **three** approaches you would use to achieve this. (6 marks)

QUESTION FIVE (20 MARKS)

- a) Analyse **four** key processes used to execute the Risk-based software testing (8 marks)
- b) As a software quality Assurance officer, you have considered conducting structured walk-through testing for your software. Discuss how you would carry out the process. (8 marks)
- c) Compare manual and automated software testing (4 marks)