

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF
SCIENCE IN APPLIED COMPUTER SCIENCE**

ACSC 434: SOFTWARE ENGINEERING II

STREAMS: ACSC (Y4S1)

TIME: 2 HOURS

DAY/DATE: FRIDAY 13/12/2024

11.30 A.M. – 1.30 P.M.

INSTRUCTIONS:

- **Answer Question One and any other two questions**

Question One (30 marks)

- Discuss three activities that take place in change management of software systems. (6 marks)
- Discuss the two categories of safety critical systems. (4 marks)
- Discuss the master slave architecture. (4 marks)
- Discuss the differences between thin-client architecture and fat-client architecture models of client server models. (4 marks)
- Explain four achievements expected from a quality plan. (4 marks)
- Suppose a customer has proposed a change in a currently working program, discuss how you would go about approving or disapproving the proposed changes. (4 marks)
- Explain four reasons why software that is already in use will always have to change. (4 marks)

Question Two (20 marks)

- Discuss three advantages of CASE tools. (6 marks)
- Discuss three strategies that can be used to ensure we develop dependable systems. (6 marks)

- (c) Research suggests that the cost of software maintenance contributes 60% of the total software expenses right from development. Discuss any four contributions to this state of affairs in the software industry. (8 marks)

Question Three (20 marks)

- (a) Imagine you are implementing a software-based control system. Discuss three circumstances in which it would be appropriate to use a fault-tolerant architecture. (6 marks)
- (b) Software quality is one of the key indicators of success in a software development project. As a quality manager, discuss three activities that would form part of your quality management tasks. (6 marks)
- (c) Discuss four considerations that a quality team should check in assessing the quality of an online banking software application rolled out by a bank say KCB bank. (8 marks)

Question Four (20 marks)

- (a) Briefly describe the of client-server computing. (6 marks)
- (b) Identify three security threats in a banking software system. Suggest controls that might be put in place to reduce the chances of a successful attack based on these threats. (6 marks)
- (c) Explain why software systems in all sectors ought to be dependable. (8 marks)

Question Five (20 marks)

- (a) Explain three most important dimensions of software system dependability. (6 marks)
- (b) Explain why distributed software systems are more complex than centralized software systems. (6 marks)
- (c) Discuss four types of attacks that a distributed system should guard against. Suggest measures for dealing with each attack. (8 marks)
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