



(University of Choice)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY

(MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS 2022-2023

FOR THE DEGREE

IN

ELECTRICAL AND COMMUNICATION ENGINEERING

COURSE CODE: ECE512

COURSE TITLE: SOFTWARE ENGINEERING

DATE: 19/12/2022

TIME: 8:00 AM - 10:00 AM

INSTRUCTIONS TO CANDIDATES

Answer **Question ONE (1)** and any other **TWO**

TIME: 2 Hours

MMUST observes **ZERO** tolerance to examination cheating

This Paper Consists of 3 Printed Pages. Please Turn Over.

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QUESTION ONE (30 MARKS) (COMPULSORY)

- a) Describe any two UML dynamic modelling diagrams used to model a system. [4 marks]
- b) Distinguish between layered architecture and client server architecture. [4 marks]
- c) Differentiate the following terms. [6 marks]
 - i. Cohesion and coupling.
 - ii. Black box and white box testing.
 - iii. Verification and validation.
- d) When implementing systems, you have choices of methods. Under what circumstances or situations would you consider a parallel method to be adopted over a phased method? [4 marks]
- e) Explain the following object oriented concepts used in software engineering: [3 marks]
 - i. Inheritance.
 - ii. Encapsulation.
 - iii. Polymorphism.
- f) Explain using relevant examples the difference between functional and non-functional requirements. [4 marks]
- g) Using an appropriate diagram, describe spiral process model. [5 marks]

QUESTION TWO (20 MARKS)

- a) Define a software process model. [2 marks]
 - i. List any four software development process models. [4 marks]
 - ii. Discuss the fundamental activities in the software development life cycle [8 marks]
- b) Explain the following terms as used in software configuration management [4 marks]
 - i. Baselines
 - ii. Software configuration Item
- c) Explain quality of software development [2 marks]

QUESTION THREE (20 MARKS)

- a) Discuss all activities carried out during requirement gathering and analysis for software development [10 marks]
- b) Mark wants to confirm that he has procured the best software for the tasks defined in his business. Discuss five measurable qualities he can use for his purpose. [10 marks]

QUESTION FOUR (20 MARKS)

- a) Discuss five kind of plans in project management. [10 marks]
- b) Jack has been tasked with carrying out software maintenance for a client on behalf of his company/employer. Discuss five maintenance types that can be carried out. [10 marks]

QUESTION FIVE (20 MARKS)

- a) Using a well labelled diagram, discuss how Gantt chart can be used to schedule the activities of a project. You can use a specific case study and duration of 6 months. [10 marks]
- b) Discuss five categories of errors that can be handled during software quality assurance. [10 marks]

