



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF ENGINEERING

DEPARTMENT OF ELECTRONIC ENGINEERING

Software Engineering

EEE 1231

Final Examination Paper

March 2025

This examination paper consists of 3 pages

Time Allowed: 3 hours

Total Marks: 100

Special Requirements: None

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INSTRUCTIONS

1. Answer **ANY FOUR QUESTIONS.**
2. Each question carries 25 marks.

MARK ALLOCATION

QUESTION	MARKS
1	25
2	25
3	25
4	25
5	25
6	25
TOTAL	100

QUESTION 1

- a) With the aid of a diagram, describe in detail, the stages of the prototyping model. [20]
- b) What are the shortcomings of the prototyping model? [5]

QUESTION 2

- a) Explain the term software paradigms and describe the different categories of software paradigms. [10]
- b) Differentiate between software and a program. [2]
- c) State and briefly explain the basic software process activities. [8]
- d) List any **FIVE** components of software. [5]

QUESTION 3

- a) Explain the term software configuration management in relation to software engineering. [2]
- b) State and explain the steps involved in configuration change. [18]
- c) What is a changeover crisis? [2]
- d) State any **THREE** changeover strategies. [3]

QUESTION 4

- a) What purpose do Use-Case diagrams serve? [4]
- b) Give a detailed outline of the elements of a Use-Case diagram. [12]
- c) Draw a Use-case diagram for the following scenario:

A restaurant serves food to customers that has been prepared by the chef. The chef must ensure that he/she prepares food as per customer's order. Orders for food are taken by a waiter, and the prepared order is served to the customer by that waiter. The waiter is responsible for getting the payment from the customer. The payment is then received by the cashier. The customer can order wine alongside their meal. [9]

QUESTION 5

- a) What is software evolution? [1]
- b) State and explain software evolution laws. [8]
- c) Describe four types of software maintenance. [8]
- d) Give an outline of the software maintenance activities. [8]

QUESTION 6

- a) Explain the importance of software testing. [10]
- b) Why is verification sometimes referred to as static testing? [3]
- c) Describe in brief the the following types of testing:
 - i) Unit testing
 - ii) Integration testing
 - iii) System testing
 - iv) Regression testing [8]
- d) List any FOUR challenges of the verification and validation. [4]

END OF EXAMINATION PAPER