



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF APPLIED SCIENCE

DEPARTMENT OF COMPUTER SCIENCE

SOFTWARE ENGINEERING

SCS 1214

Examination Paper

Second semester Exams 2025

This examination paper consists of 4 pages

Time Allowed: 3 hours
Total Marks: 100
Examiner's Name: Mr J. Mutengeni
External Examiner: Doctor C. Gombiro

INSTRUCTIONS

1. Answer any four (4) questions
2. Each question carries 25 marks
3. Use of calculators is permissible

MARK ALLOCATION

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

QUESTION ONE

- a) Explain the following terms as they are used in software Engineering
- i. Software Process [2]
 - ii. Unit Testing [2]
 - iii. Integration Testing [2]
 - iv. System Testing [2]
 - v. Acceptance Testing [2]
- b) A company is developing an e-commerce platform. The platform must support user registration, product search, shopping cart functionality, and payment processing. The development team is considering using the Scrum framework for this project. Identify the key stakeholders for this project. [5]
- c) What is the role of a software Project Engineer? Discuss the key challenges they face during a project. [10]

QUESTION TWO

- a) Discuss the ethical considerations involved in developing software that collects user data. How would you ensure that user privacy is protected? [10]
- b) You discover a critical bug in a software product that has already been released to customers. What steps would you take to address the issue, and how would you communicate with stakeholders? [15]

QUESTION THREE

- a) With reference to the Unified Modelling Language(UML)
- i. What is a use case diagram? [2]
 - ii. Draw a use case diagram for an online shopping system. [8]
- b) Describe the process of requirements elicitation. [7]
- c) Explain any **four** techniques that can be used to gather requirements from stakeholders. [8]

QUESTION FOUR

- a) Explain the following system testing terms as they are used in software engineering
- i. White Box testing [5]
 - ii. Black Box Testing [5]
- b) Describe the Agile methodology and how it differs from the Waterfall model. [5]
- c) What are the advantages and disadvantages of using Agile for software development? [10]

QUESTION FIVE

- i. Explain the difference between functional and non-functional requirements in software engineering. Provide examples of each. [5]
- ii. What is the difference between verification and validation? [5]
- iii. What is the significance of software maintenance? [5]
- iv. Discuss the different types of maintenance activities. [10]

END OF QUESTION PAPER