



**UGANDA INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
PROGRESSIVE ASSESSMENT EXAMINATIONS
ACADEMIC YEAR 2025/2026**

PROGRAMME(S): DIPLOMA IN COMPUTER SCIENCE (DCS)
YEAR OF STUDY: TWO SEMESTER TWO
COURSE: INTRODUCTION TO SOFTWARE ENGINEERING
COURSE CODE : CSC2202
DATE: WEDNESDAY 24TH, JUNE 2026
TIME: 2:00 PM – 5:00 PM
DURATION: 3 HOURS
VENUE: RM.2.5, 2.8, 2.9, 2.10, 2.6

Instructions:

Answer **ALL** questions in Section A and any **THREE** from Section B

SECTION A: (40 Marks)

1. What is the primary goal of Software Engineering?
 - a) To develop hardware systems
 - b) To create software quickly without planning
 - c) To develop high-quality software systematically and efficiently
 - d) To write code without documentation

2. Which of the following is NOT a phase of the Software Development Life Cycle (SDLC)?
 - a) Requirement analysis
 - b) Design
 - c) Testing
 - d) Hardware manufacturing

3. Which model of software development emphasizes iterative releases and customer feedback?
 - a) Waterfall model
 - b) V-Model
 - c) Agile model
 - d) Spiral model

4. In software engineering, what is "requirements engineering"?
 - a) The process of coding the software
 - b) The process of gathering and defining what the software should do
 - c) The process of deploying software to users
 - d) The process of testing software

5. Which of the following is a non-functional requirement?
 - a) User authentication
 - b) Response time of the system
 - c) Data entry validation
 - d) Login credentials

6. What does "modularity" in software engineering refer to?
 - a) Writing code in a single file
 - b) Breaking down software into independent modules

- c) Using modules from third-party vendors
 - d) Connecting modules via network
7. Which of these is an example of a software process model?
- a) Waterfall
 - b) Linear regression
 - c) Decision tree
 - d) Bubble sort
8. What is "software maintenance"?
- a) Developing new software features
 - b) Correcting, improving, or updating software after delivery
 - c) Installing software on new hardware
 - d) Writing initial requirements
9. Which of the following best describes "software testing"?
- a) The process of designing software architecture
 - b) The process of executing a program to find defects
 - c) The process of documenting code
 - d) The process of deploying software
10. What is the main characteristic of the "Waterfall model"?
- a) Iterative and incremental
 - b) Sequential and linear
 - c) Based on customer feedback after each phase
 - d) Focused on rapid prototyping
11. Which document specifies the functionalities of a software system?
- a) Test plan
 - b) Requirements specification
 - c) Design document
 - d) User manual
12. What does "reusability" refer to in software engineering?
- a) Using the same code for multiple projects
 - b) Repeating the development process multiple times
 - c) Reusing hardware components in software

- d) Reinstalling software multiple times
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- 13. Which of the following is a benefit of using the Agile methodology?
 - a) Strict documentation
 - b) Flexibility to changes during development
 - c) No customer involvement
 - d) Complete planning before development begins
 - 14. Which role is responsible for ensuring the quality of the software in a project?
 - a) Project Manager
 - b) Quality Assurance Engineer
 - c) Developer
 - d) System Administrator
 - 15. What is "version control" in software engineering?
 - a) Managing different versions of software source code
 - b) Controlling the number of users accessing software
 - c) Controlling hardware versions
 - d) Managing software licenses
 - 16. Which of the following is a common programming language used in software engineering?
 - a) HTML
 - b) Java
 - c) Photoshop
 - d) Excel
 - 17. What is the purpose of a "test plan"?
 - a) To describe how testing will be performed and what will be tested
 - b) To outline the project's budget
 - c) To specify hardware requirements
 - d) To define user interface design
 - 18. Which principle emphasizes that "high cohesion" and "low coupling" lead to better software design?
 - a) Waterfall principle
 - b) Modularity principle

- c) Reusability principle
 - d) Maintainability principle
19. What is a "use case" in software engineering?
- a) A specific scenario describing how users interact with the system
 - b) A type of software bug
 - c) A hardware component required for software
 - d) A programming language feature
20. Which activity is part of the "deployment" phase in SDLC?
- a) Writing code
 - b) Delivering the software to users and installing it
 - c) Gathering requirements
 - d) Designing the database

SECTION B: (60 Marks)

Question 21

You are a software engineer working on a healthcare system. The project manager requests you to omit certain safety checks to meet a tight deadline and limited budget.

- (a) Identify two ethical responsibilities you would have as a software engineer in this situation. (4 Marks)
- (b) Suggest any five possible entities of the proposed system. (10 Marks)
- (c) Describe three reasons why estimated budget for the development of software at times become insufficient. (6 Marks)

Question 22

A startup is developing a new e-commerce application. The Project Manager (PM) has recommended use of the Agile software process model. The developed system should be tested and validated.

- (a) Give two reasons why it is important to test and validate a system. (4 Marks)
- (b) Explain any three reasons why the PM recommended the software development model cited in the scenario above. (6 Marks)
- (c) Describe two ways software evolution might be managed after the initial release. (4 Marks)

- (d) Assuming you instead chose to use the Waterfall Model, suggest three reasons why you would settle for it. (6 Marks)

Question 23

A bank is developing a new online banking system. The requirements gathering team needs to identify user and system requirements.

- (a) Explain one reason why security requirements are critical in the development of this online banking system. (2 Marks)
- (b) Differentiate between functional and non-functional requirements with examples relevant to this system. (4 Marks)
- (c) Describe any three non-functional requirements for the system above. (6 Marks)
- (d) Describe any four tools used to gather information about the online banking system. (8 Marks)

Question 24

- (a) Design a UML class diagram for an e-learning platform that includes courses, students, instructors, and assignments. (8 Marks)
- (b) Using your diagram above, show how associations and multiplicity are represented in your diagram. (4 Marks)
- (c) Explain the concept of generalization with an example related to the platform, for example; different types of users. (2 Marks)
- (d) Describe three ways by which instance diagrams can be used to visualize the system at runtime. (6 Marks)

Question 25

You are leading a team responsible for developing a mobile app. The team has diverse skill levels and experiences.

- (a) Describe four factors to consider when choosing team members for this project. (8 marks)
- (b) Suggest three ways of motivating the team to ensure project success. (6 Marks)
- (c) Describe any three challenges faced by project managers in running a software project. (6 Marks)

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