



“Investing in Africa’s future”
COLLEGE OF ENGINEERING AND APPLIED SCIENCES (CEAS)
NCSE 300-SOFTWARE TESTING AND QUALITY ASSURANCE
END OF FIRST SEMESTER EXAMINATIONS
NOVEMBER 2024
LECTURER: PROF. YOGESH AWASTHI
DURATION: 3 HOURS

INSTRUCTIONS

Answer the question as per the instructions given in the sections

Start **each** question on a new page on your answer sheet.

The marks allocated to **each** question are shown at the end of the section.

Section A (20 Marks)

Q.1 Choose the correct or the best alternative in the following: (2×10)

- i. Which of the following is **not** a type of functional testing?
 - A. System Testing
 - B. Unit Testing
 - C. Usability Testing
 - D. Integration Testing
- ii. The main purpose of testing is to:
 - A. Ensure customer satisfaction
 - B. Find and fix defects in a software
 - C. Improve development speed
 - D. Enhance the appearance of the software
- iii. Which testing level focuses on testing the interaction between integrated components?
 - A. Unit Testing
 - B. Integration Testing
 - C. System Testing
 - D. Acceptance Testing
- iv. Which one is **not** a part of Software Quality Assurance?
 - A. Test Execution
 - B. Quality Planning
 - C. Risk Management
 - D. Quality Control
- v. What does a Test Plan typically contain?
 - A. Test cases
 - B. Test execution schedule
 - C. Test closure criteria
 - D. All of the above
- vi. Which testing type focuses on measuring the software's ability to perform under stress?
 - A. Stress Testing
 - B. Load Testing
 - C. Unit Testing
 - D. Security Testing
- vii. Which of the following is **not** a type of black-box testing?
 - A. Functional Testing
 - B. Performance Testing
 - C. Boundary Value Testing
 - D. Static Testing
- viii. Which software testing activity is performed in a real-world environment?
 - A. Alpha Testing
 - B. Beta Testing
 - C. Regression Testing
 - D. Unit Testing
- ix. A well-designed test case is one that:
 - A. Executes the software without any errors
 - B. Detects undiscovered defects
 - C. Only tests the positive conditions
 - D. Skips edge cases
- x. Which of the following is a non-functional testing type?
 - A. Unit Testing
 - B. Regression Testing
 - C. Performance Testing
 - D. User Acceptance Testing

Section B (40 Marks)

Q2. Answer any Five questions from Section B. (8×5=40)

- a. Explain the V-Model of software development and how testing fits into this model.
- b. Define Static Testing and Dynamic Testing, and give two examples of each.
- c. What is the importance of a Test Strategy in a software project? Describe its main components.

- d. Discuss the role of Test Automation in improving software quality. What are its advantages and limitations?
- e. Explain the concept of Risk-Based Testing. How would you prioritize testing based on risks?
- f. What is the difference between Verification and Validation in software testing? Provide examples for both.
- g. Explain how performance bottlenecks are identified during testing. What tools are commonly used for performance testing?
- h. Discuss the challenges faced in manual testing and how they are addressed in automated testing.

Section C (40 Marks)

Q3. Answer any two questions from Section C. (20×2=40)

- a. Discuss the Six Sigma approach in improving software quality. Explain the DMAIC cycle and how it is applied in software testing.
- b. Explain the concept of Agile Testing and how it differs from traditional testing methodologies. Provide examples of Agile Testing practices.
- c. Analyze a scenario where a software company is building an e-commerce platform. The platform is expected to handle high traffic and frequent updates. Identify and explain the key non-functional requirements that should be prioritized, and describe the testing techniques used to verify them.

END OF PAPER