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Question Paper Code : 50449

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2024.

Fifth/Sixth Semester

Computer Science and Design

CCS 366 — SOFTWARE TESTING AND AUTOMATION

(Common to : Computer Science and Engineering/Computer Science and Engineering (Artificial Intelligence and Machine Learning)/Computer Science and Engineering (Cyber Security)/Computer and Communication Engineering/Electronics Communication Engineering/Artificial Intelligence and Data Science and Information Technology)

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Why to test a software?
2. Differentiate between fault and a failure with an example
3. What are the key responsibilities of a testing team during the test planning phase.
4. Name the phases of Testing.
5. What is Path testing? Give example.
6. Outline the significance of Test Design Preparedness Metrics in evaluating the readiness of test design activities.
7. Define Fail-Over Testing.
8. Name any two examples of security testing methods utilized to assess the robustness of a software application.
9. How can you add classes, packages, and methods to a testing .xml file for test execution in Selenium?
10. What are web driver events?

PART B — (5 × 13 = 65 marks)

11. (a) (i) Demonstrate software testing life cycle. (ii) Explain how program inspections serve as a valuable technique for uncovering defects within a software program.

(5+8)

Or

- (b) Explain the stages of testing in the context of software development. Discuss the activities involved in each stage, highlighting the importance of a systematic testing approach in ensuring software quality and reliability.
12. (a) Illustrate a scenario where a well-defined test strategy and test cases would have prevented a critical defect from reaching production. Provide necessary tables and examples.

Or

- (b) Summarize the significance of resource requirements, tester assignments, and test schedule in software testing and how each of these factors contributes to the overall success of a testing project.
13. (a) Consider a new mobile application designed for a fitness tracking platform. The registration feature requires users to create an account by providing a username and password. Additionally, users must enter their age, height, and weight during the registration process. Set Valid, Invalid and Boundary Values and generate test cases using Equivalence Partitioning and Boundary value Analysis.

Or

- (b) Explain how efficient organization and tracking of test cases, bug reporting contribute to optimizing the testing process and guaranteeing comprehensive test coverage.
14. (a) Imagine an e-commerce application which allows users to browse products, add items to their cart, proceed to checkout, and make purchases. The stakeholders are concerned about the applications ability to handle a large number of concurrent users during peak shopping periods without experiencing performance degradation. Show the testing methods that checks the performance of the e-commerce application in preparation for its launch, considering the scenario provided.

Or

- (b) Consider a mobile banking application that allows users to check account balances, transfer funds, pay bills, and view transaction history. The stakeholders are concerned about ensuring that the application is compatible with different mobile devices (iOS and Android) and screen sizes, while also providing a user-friendly interface that makes banking tasks easy and intuitive for users.
- (i) Which type(s) of test(s) would you perform for the software application described above? (8)
- (ii) For each type of test, specify the test objectives and description. (5)
15. (a) Illustrate the stages and steps in test automation of any web-based application of your choice using Selenium considering the need to ensure test efficiency, maintainability and reliability across different browsers and devices.

Or

- (b) Consider a scenario where you need to execute specific test methods from different classes in your Selenium project. Explain the steps you would take to incorporate the new class into the testing. xml file, ensuring it is included in the test suite for execution.

PART C — (1 × 15 = 15 marks)

16. (a) Apply system testing strategies for an Online Event Ticket Booking to evaluate the application. Consider various scenarios such as browsing event listings selecting ticket types, applying discounts, entering payment information and handling ticket availability. Generate test cases which cover both positive and negative scenarios to validate the reliability and accuracy of the ticket booking process.

Or

- (b) Develop a test plan for the above application (16.a) : Online Event Ticket Booking, considering its features to effectively address the testing needs and ensure thorough validation of the software application.
