No. of Printed Pages : **2**

21CSC3E2CL

Sl. No.

M.Sc. III Semester Degree Examination, April/May - 2024

COMPUTER SCIENCE

Software Testing
(NEP)

Time : 3 Hours | Maximum Marks : 70

Note : *Answer* ***any five*** *of the following questions with question No.* ***1 (Q.1) Compulsory****.*

1. (a) Define Software Testing and elaborate on its significance in software development processes, highlighting its role in ensuring product quality, reliability, and user satisfaction. **7**

(b) Examine the phases of the Software Testing Life Cycle (STLC), including requirements analysis, test planning, test case design, test execution, defect tracking, and test closure, elucidating their roles in ensuring comprehensive testing coverage and product quality. **7**

2. (a) Define risk-based testing and outline its approach in software testing, emphasizing the identification , assessment, and prioritization of risks to determine testing strategies and priorities. **7**

(b) Provide a comprehensive explanation of McCall's Quality Model, detailing its components and how it categorizes software quality factors into eleven key characteristics. **7**

3. (a) Explore statement coverage testing and branch coverage testing methodologies, explaining their objectives and differences in assessing the extent of code execution and decision outcomes during software testing. **7**

(b) Define use case testing and outline its features, emphasizing its focus on validating software functionalities from end users' perspectives and its alignment with user requirements and scenarios. **7**

4. (a) Explain the concept of test case template, outlining its structure and components, and identify the essential fields typically included in a test case template to ensure comprehensive documentation of test cases. **7**

(b) Define test scenarios and provide examples of ten test scenarios tailored specifically for an E-Commerce application, demonstrating their relevance in validating different aspects of the system's functionality and usability. **7**

P.T.O.

5. (a) Define debugging and enumerate its advantages in software development, emphasizing its role in identifying and rectifying defects to improve software quality, reliability, and performance. **7**

(b) Describe the stages of Test Closure in software testing, outlining the activities involved in concluding the testing phase, documenting test results, obtaining sign-off from stakeholders, and preparing test closure reports. **7**

6. (a) Explain compatibility testing and its significance in verifying software compatibility across different environments, platforms, and configurations. Discuss the various categories of compatibility testing, including hardware, software, and browser compatibility. **7**

(b) Provide an explanation of the Cause-Effect Graph technique in software testing, accompanied by a practical example to demonstrate its utility in identifying test cases based on causal relationships between inputs and outputs. **7**

7. (a) Define test data in software testing and elucidate its properties, including relevance, validity, diversity, representativeness, and repeatability, highlighting the significance of using appropriate test data to ensure thorough test coverage and accuracy in testing outcomes. **7**

(b) Define a software bug and categorize the different types of bugs commonly encountered in software development, including syntax errors, logical errors, runtime errors, and integration errors, along with their respective characteristics and impacts on system functionality. **7**

8. Write short notes on the following : **5+5+4**

(a) Art of debugging

(b) Manual vs Automated testing

(c) Cookie and Session testing

- o 0 o -