CSE/AIML

(T) Roll No. .....

PAPER ID—11445

B. Tech. EXAMINATION, 2026

(Sixth Semester)

COMPUTER SCIENCES AND INFORMATION TECHNOLOGIES

Professional Elective Course-II

Software Testing

Time : 3 *Hours* *Maximum Marks :* 70

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

1. (a) What is meant by verification and validation in testing ?

(b) What is meant by the principle 'Testing shows presence of defects' ?

(c) Name any *two* bug tracking tools used in software testing.

(d) Why is test case documentation important in testing ?

(e) Differentiate between unit testing and system testing.

(f) Why is Black Box Testing important in software testing ?

(g) Why is it important to make a bug reproducible ? 7×2-14

Unit I

2. (a) Describe the limitations of software testing. Explain, why testing cannot guarantee completely error-free software and discuss the practical constraints involved in testing. 7

(b) Explain the overview of the Software Development Life-Cycle. Describe the different phases involved in SDLC and explain, how it helps in systematic software development and project management. Explain the objectives of software testing. 7

3. (a) Discuss the main goals of testing such as defect detection, verification of requirements, and improvement of software quality. 7

(b) Differentiate between Error, Fault and Failure. Explain each term with examples and describe, how an error made by a developer can lead to a fault and eventually a system failure. 7

Unit II

4. (a) Explain the different levels of software testing. 7

(b) While testing a mobile application, poorly designed test cases fail to detect several defects. Explain the characteristics of a good test case design that could help avoid this situation. 7

5. (a) A software development team follows a model where testing activities are planned alongside development phases. Explain, how the V-Model of software testing ensures better verification and validation during software development. 7

(b) Explain, how integration testing helps identify interface defects between modules. 7

Unit III

6. (a) Explain White Box Testing and its importance in software testing. Discuss, how white box testing examines the internal logic and structure of the program and helps detect errors in code implementation. 7

(b) During testing of a mobile application, a defect is discovered that causes the app to crash when a specific input is entered. Explain how a tester should create a problem report describing this bug for developers. 7

7. (a) Explain the process of analysing bugs in software testing. Discuss, how testers analyze reported bugs to determine their causes and evaluate their impact on software functionality. 7

(b) A developer tests the internal logic, loops, and conditions of a program by examining the source code. Explain which type of testing is being applied and discuss, how it helps detect logical errors in the program. 7

Unit IV

8. (a) A software development team uses a bug tracking tool to manage defects found during testing. Explain, how such tools help testers record, track, and monitor bugs during the software testing process. 7

(b) A software tester reports a bug but the developer cannot reproduce the issue on their system. Explain, what steps the tester should take to make the bug reproducible and help developers identify the problem. 7

9. (a) Describe how Gray Box Testing combines features of both Black Box and White Box testing and improves defect detection. 7

(b) Explain the contents and characteristics of a good problem report. Describe the important information included in a problem report and explain, why clarity and accuracy are important. 7