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**Question Paper Code : 70838**

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2023.

Sixth Semester

Information Technology

IT 8076 — SOFTWARE TESTING

(Common to: Computer Science and Engineering / Computer and Communication Engineering)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate errors, faults and failures.
2. What is role of test specialist?
3. Define Cyclomatic Complexity.
4. What is the need of test adequacy criteria?
5. What is a software unit? List down the characteristics of a software unit.
6. List down the advantages of Bottom up integration testing.
7. List some personnel and managerial skills required by a test specialist.
8. What is test incident report?
9. What are test and load tools?
10. Discuss the need for test automation.

PART B — (5 × 13 = 65 marks)

11. (a) Explain the various levels of Test Maturity Model in details. Discuss the merits of TMM. Compare TMM with CMM.

Or

- (b) Discuss the principles of software testing and detail the role of tester in a software organization.

12. (a) Explain in detail about various white box testing approaches.

Or

- (b) Explain the various axioms that allow testers to evaluate Test Adequacy Criteria.

13. (a) What is the need for Integration testing? Explain about integration testing with suitable example.

Or

- (b) Compare and contrast Alpha and Beta testing with appropriate examples.

14. (a) Explain the process of test planning and various components of test plan with an example.

Or

- (b) Explain the various phases of test management in details.

15. (a) Explain the process of software test automation with neat diagram. Also discuss the challenges of test automation.

Or

- (b) Explain the various types of software testing metrics. Also illustrate the test metrics lifecycle with diagram.

PART C — (1 × 15 = 15 marks)

16. (a) Demonstrate black box test cases using equivalence class partitioning and boundary value analysis to test a module for students internal mark calculation system.

Or

- (b) What is a cause effect graph? List down the causes and effects and draw the cause effect graph for the following case: There are two columns: col1 and col2. The characters allowed in col1 are 'a' or 'b'. The characters allowed in col2 are digits 0-9. A file is updated if both the columns i.e. col1 and col2 are correct. If col1 is incorrect, message 'X' is displayed and if col2 is incorrect, message 'Y' is displayed. Draw the cause-effect graph for the given problem.