

**R18**

Code No: 156CW

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, January/February - 2025

**SOFTWARE TESTING METHODOLOGIES**

(Common to CSE, IT, ITE, CSE(DS), CSE(IOT))

Time: 3 Hours

Max. Marks: 75

**Note:** i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

**PART - A**

**(25 Marks)**

- 1.a) What is the purpose of debugging? [2]
- b) How to achieve 100% branch coverage? [3]
- c) What are the characteristics of nice domain? [2]
- d) What is the need of test database in testing? [3]
- e) What is path product? [2]
- f) What is meant by hardware logic testing? [3]
- g) What is a dead state? [2]
- h) What are equivalent states? Give example. [3]
- i) Define graph. [2]
- j) List the features of JMeter. [3]

**PART - B**

**(50 Marks)**

- 2.a) Explain the remedies for test bugs.
- b) What is the role of environment and program in the model for testing? [5+5]

**OR**

- 3.a) Provide alternative flowgraphs for  $\text{if}(A=0 \ \&\& \ B=1) \text{ then Statement1 else Statement2}$ .
- b) Summarize the proper way to test multi-entry or multi-exit routines. [5+5]

4. What are the major issues and challenges in transaction-flow testing? Suggest approaches to handle the challenges. [10]

**OR**

- 5.a) Contrast static and dynamic anomaly detection in data-flow testing.
- b) Illustrate domain testing as a partition testing. [5+5]

6. Apply maximum path count arithmetic to find number of paths in the following path expression:  
 $a(b+c)d\{e(fi)*fgj(m+l)k\}*e(fi)*fgh$  [10]

**OR**

- 7.a) When is the use of a decision table model warranted to design tests?
- b) How to reduce complexity by simplifying the logic in testing? [5+5]

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8. What is a transition bug? Demonstrate handling it in testing process with example. [10]

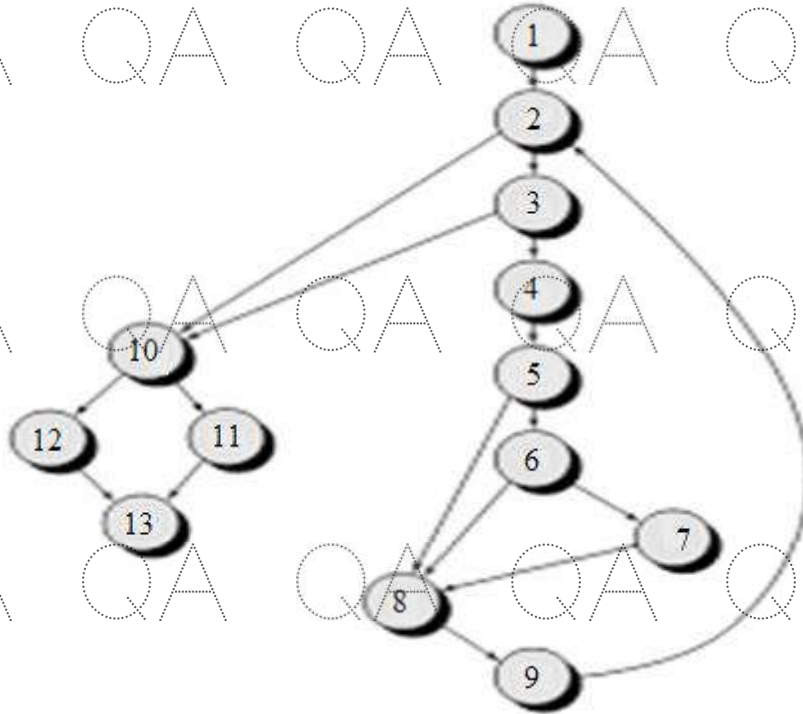
**OR**

9.a) Discuss in detail the principles of state testing. [5+5]  
b) Illustrate essential finite state behavior for system testing.

10. Explain node reduction algorithm for graphs and its optimization. [10]

**OR**

11. Apply partitioning algorithm to the following graph and explain the concept of breaking loops. [10]



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