

## 8. Unit wise question bank

### Software Testing Methodologies

#### QUESTION BANK

##### UNIT-I

UNIT-I			
PART-A (1 Mark)			
S.No	Question	BT	CO
1	Discuss the purpose of testing in software development	L2	CO1
2	Explain the concept of dichotomies in software testing	L2	CO1
3	Describe the model for testing and its components.	L2	CO1
4	Discuss the consequences of bugs in software systems	L2	CO1
5	Explain the taxonomy of bugs in software testing.	L2	CO1
6	Describe the basic concepts of path testing in software testing methodologies	L2	CO1
7	Discuss predicates and path predicates in the context of path testing	L2	CO1
8	Explain the concept of path sensitizing in path testing	L2	CO1
9	Describe path instrumentation and its role in path testing.	L2	CO1
10	Discuss the application of path testing in software development	L2	CO1

PART-B (5 Marks)			
S.No	Question	BT	CO
1	Explain why testing is essential and how it contributes to the overall quality of software product	L2	CO1
2	Discuss the different types of dichotomies and their significance in designing effective testing strategies	L2	CO1
3	Explain each component and how they contribute to the overall testing process	L2	CO1
4	Explain life cycle of bug and Explain the potential impact of bugs on different stakeholders, including end-users, developers, and businesses.	L1	CO1
5	Discuss the different categories or types of bugs and provide examples for each category	L1	CO1
6	Explain how flow graphs are used to represent program control flow and how they are utilized in path testing	L2	CO1

UNIT-II			
PART-A (1 Mark)			
S.No	Question	BT	CO
1	Explain transaction flows and their significance in software testing	L1	CO2
2	Describe different transaction flow testing techniques	L1	CO2
3	Discuss the basics of dataflow testing in software testing methodologies.	L1	CO2
4	Describe different strategies used in dataflow testing.	L1	CO2

5	Explain the application of dataflow testing in software development.	L1	CO2
6	Discuss the concept of domains and paths in domain testing.	L2	CO2
7	Differentiate between nice domains and ugly domains in software testing.	L2	CO2
8	Explain the concept of domain testing and its significance in identifying defects and vulnerabilities	L2	CO2
9	Discuss the relationship between domains and interface testing	L2	CO2
10	Explain the importance of testability in domain and interface testing.	L2	CO2

**PART-B (5 Marks)**

S.No	Question	BT	CO
1	Discuss the challenges and considerations involved in testing transaction flows effective	L2	CO2
2	Explain how each technique can be applied to identify potential issues and ensure the reliability of software systems	L2	CO2
3	Explain the concept of dataflow and its importance in detecting defects and vulnerabilities	L2	CO2
4	Describe different strategies used in dataflow testing	L3	CO2
5	Explain the application of dataflow testing in software development.	L3	CO2
6	Discuss the concept of domains and paths in domain testing	L3	CO2

**UNIT-III**

**PART-A (1 Mark)**

S.No	Question	BT	CO
1	Explain the concept of paths in software testing.	L1	CO3
2	Describe path products and path expressions	L1	CO3
3	Discuss the reduction procedure in path products and path expressions	L1	CO3
4	Explain the applications of path products and path expressions in software testing	L1	CO3
5	Discuss the concept of regular expressions in software testing	L1	CO3
6	Provide an overview of logic-based testing	L1	CO3
7	Explain the concept of decision tables in logic-based testing	L1	CO3
8	Describe the use of path expressions in logic-based testing	L1	CO3
9	Discuss the concept of KV charts in logic-based testing.	L1	CO3
10	Explain the role of specifications in logic-based testing	L1	CO3

**PART-B (5 Marks)**

S.No	Question	BT	CO
1	Discuss the significance of identifying and testing different paths within a software program	L2	CO3
2	Explain how path products are used to represent the combinations of paths, and how path expressions can be constructed to specify specific paths in a software program	L2	CO3
3	Explain how the reduction procedure helps simplify and manage the complexity of testing multiple paths	L3	CO3
4	Discuss how they can be utilized to design test cases and identify potential issues in different execution paths	L3	CO3
5	Explain how regular expressions can be used for flow anomaly detection and to identify patterns in software execution	L2	CO3

6	Discuss the principles and techniques involved in logic-based testing and how it can be used to ensure the correctness of software systems	L3	CO3
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UNIT-IV			
PART-A (1 Mark)			
S. No	Question	BT	CO
1	Explain the concept of states, state graphs, and transition testing in software testing.	L1	CO4
2	Differentiate between good state graphs and bad state graphs in software testing	L1	CO4
3	Discuss state testing and its significance in software testing methodologies.	L1	CO4
4	Explain the concept of testability in software testing.	L1	CO4
5	Discuss the role of state graphs in test case design.	L1	CO4
6	Explain the concept of test oracle in state and transition testing	L1	CO4
7	Discuss the challenges and considerations involved in state and transition testing	L1	CO4
8	Describe the different techniques used in state and transition testing.	L1	CO4
9	Explain the concept of fault-based testing in state and transition testing	L1	CO4
10	Discuss the importance of traceability in state and transition testing.	L1	CO4

PART-B (5 Marks)			
S. No	Question	BT	CO
1	Discuss how state graphs are used to represent the behavior and transitions of a software system	L3	CO4
2	Discuss the characteristics of each type and their impact on the effectiveness of transition testing	L4	CO4
3	Explain how state testing techniques can be applied to validate the behavior and transitions of a software system in different states	L2	CO4
4	Discuss the factors that influence testability and provide tips on how to improve testability in software systems	L4	CO4
5	Discuss how test oracles can be used to determine the expected outcomes of test cases and validate the behavior of a software system	L2	CO4
6	Explain the potential issues that may arise, such as state explosion and how to address them effectively	L3	CO4

UNIT-V			
PART-A (1 Mark)			
S.No	Question	BT	CO
1	Provide a motivational overview of graph matrices and their application in software testing	L1	CO5
2	Explain the concept of a matrix of a graph	L1	CO5
3	Discuss the concept of relations in graph matrices	L1	CO5
4	Explain the power of a matrix in the context of graph matrices	L1	CO5
5	Describe the node reduction algorithm in graph matrices	L1	CO5
6	Discuss the building tools used in graph matrices.	L1	CO5
7	Provide an overview of JMeter as a tool for software testing.	L4	CO5
8	Discuss WinRunner as a tool for software testing	L1	CO5
9	Explain the importance of exposure to tools like JMeter or WinRunner in software testing methodologies	L1	CO5

10	Discuss the challenges and considerations involved in using tools like JMeter or WinRunner in software testing	L1	CO5
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**PART-B (5 Marks)**

S.No	Question	BT	CO
1	Explain the significance of using graph matrices to represent relationships and dependencies in a software system	L2	CO5
2	Discuss how the matrix representation can be used to analyze the structure and properties of a graph, and how it can be applied in software testing	L3	CO5
3	Explain the different types of relations that can be represented and analyzed using matrix notation, and their relevance to software testing	L3	CO5
4	Discuss how powers of a matrix can be used to analyze and predict the behavior and properties of a graph	L4	CO5
5	Explain how the algorithm can be used to simplify and optimize the representation of a graph, and how it can aid in software testing	L3	CO5
6	Explain the tools that can be utilized to construct and manipulate graph matrices, and how they can be applied in software testing scenarios	L3	CO5