

Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER - III EXAMINATION - WINTER 2025

Subject Code: MC03094141

Date: 24-11-2025

Subject Name: Software Testing

Time: 10:30 AM TO 01:00 PM

Total Marks: 70

Instructions

- 1. Attempt all questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**
- 4. Use of simple calculators and non-programmable scientific calculators are permitted.**

	Marks
Q.1 (a) Explain the following terms: 1. Fault 2. Failure 3. Model based testing 4. Validation 5. Verification 6. Risk 7. Software Testing	07
(b) Write a brief account on Control Flow Graphs. Draw a CFG to show the effect of "while / for" loops kind of blocks.	07
Q.2 (a) Write a brief account on Activities of test engineers.	07
(b) What are the components of a Test Case? Elaborate on each component with appropriate example.	07
OR	
(b) Differentiate: Manual Testing and Automated Testing. Write a brief note on JUnit as to how it is used in writing automated test cases.	07
Q.3 (a) What do you understand by FSM. What are the components used for designing FSM for testing purpose.	07
(b) Using the concept of predicates and clauses, briefly explain how logic based testing is carried out.	07
OR	
(a) What is the purpose of GraphWalker? How is it useful to the tester in simulating the testing environment?	07
(b) What do you understand by input-space partitioning? Explain briefly how ACTS as a tool is helpful in input-space partitioning.	07
Q.4 (a) Write a note on "Mutation" as Grammar based testing	07
(b) Write a brief note on tools used for syntax based testing.	07

OR

- (a)** What is syntax based testing? How are grammars or specifications used in syntax-based testing? Mention some tools or frameworks commonly used for syntax-based testing **07**
- (b)** Taking an example of your choice show the use of ANTLR for syntax-based testing. **07**
- Q.5 (a)** Write a short note on KLEE as an automated process in Symbolic testing with appropriate example **07**
- (b)** Give a brief account on the working of Selenium for testing of Web Applications **07**

OR

- (a)** Giving an appropriate example, explain how JUnit is used for automated test case writing. **07**
- (b)** Give a brief note on how Concolic Regression Testing System (CREST) used in testing of programs **07**
