

**INSTITUTE OF AERONAUTICAL ENGINEERING**

(Autonomous)

Dundigal-500043, Hyderabad

B.Tech VI SEMESTER END EXAMINATIONS (REGULAR) - JULY 2023

Regulation: UG-20

SOFTWARE TESTING METHODOLOGY

Time: 3 Hours

(INFORMATION TECHNOLOGY)

Max Marks: 70

Answer ALL questions in Module I and II**Answer ONE out of two questions in Modules III, IV and V****All Questions Carry Equal Marks****All parts of the question must be answered in one place only****MODULE – I**

1. (a) Outline about the structural bugs, coding bugs, data bugs and system bugs. Also, discuss the methods to catch these bugs. [BL: Understand| CO: 1|Marks: 7]
- (b) Identify yourself as a developer of flight control system. Describe any three test adequacy criteria you would consider applying to develop test cases for flight control system. [BL: Apply| CO: 1|Marks: 7]

MODULE – II

2. (a) Describe the structural testing strategies of data flow testing based on the program's control flow graph. [BL: Understand| CO: 2|Marks: 7]
- (b) Classify different types of data flow anomalies and data flow anomaly state graphs. Write applications of data flow testing. [BL: Understand| CO: 2|Marks: 7]

MODULE – III

3. (a) Summarize the following terms
 - i) Domains
 - ii) Domain closure
 - iii) Domain dimensionality
 - iv) Bug assumptions for domain testing [BL: Understand| CO: 3|Marks: 7]
- (b) Construct a schematic representation of domain testing model. Here, a routine must classify the input and set it moving on the right path. [BL: Apply| CO: 3|Marks: 7]
4. (a) Demonstrate the standard procedure for creating decision tables and draw a complete decision table for payroll system. [BL: Understand| CO: 4|Marks: 7]
- (b) Build Karnaugh-Veitch-charts of single variables and two variables, along with an explanation of test case design. [BL: Apply| CO: 4|Marks: 7]

MODULE – IV

5. (a) In reduction procedure explain about:
 - i) Cross-term step
 - ii) Parallel term
 - iii) Loop term [BL: Understand| CO: 5|Marks: 7]

- (b) Demonstrate how to find approximate minimum numbers of paths using the concept of path expressions. And, explain with an example. [BL: Apply| CO: 5|Marks: 7]
6. (a) Explain the problem occurred in the regular expressions. Additionally, explain a method that can be helpful in working with regular expressions, along with an example. [BL: Understand| CO: 5|Marks: 7]
- (b) How an anomaly can be detected? Discuss various types of data flow anomalies and state graphs. List the applications of data flow testing. [BL: Understand| CO: 4|Marks: 7]

MODULE – V

7. (a) Interpret the terms
i) Number of states
ii) Impossible states
iii) Equivalent states type. [BL: Understand| CO: 6|Marks: 7]
- (b) Infer the software implementation issues in state testing. Discuss tester's comments about state graphs. [BL: Understand| CO: 6|Marks: 7]
8. (a) Illustrate state codes and state symbol products and explain limitations of state graphs. [BL: Understand| CO: 6|Marks: 7]
- (b) Describe state testing and testability tips with an example and explain state graphs with implementation and an example. [BL: Understand| CO: 6|Marks: 7]

