

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Eighth Semester B.E. Degree Examination, May/June 2010
Software Testing

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting at least TWO questions from each part.

PART - A

- 1 a. Explain different quality attributes of a software. (08 Marks)
 b. Explain with a neat diagram, the testing and debugging cycle. (08 Marks)
 c. Consider the following:
 Requirement 1 : It is required to write a program that inputs two integers and outputs the maximum of these.
 Comment on its completeness. (04 Marks)
- 2 a. Using a diagram, discuss the summary of test generation strategies. (08 Marks)
 b. Consider the following Java method.
- ```

public static String collapseNewlines(String argstr)
{
 char last = argstr.charAt(0);
 StringBuffer argBuf = new StringBuffer();
 for (int cldx = 0; cldx < argstr.length(); cldx++)
 {
 char ch = argstr.charAt(cldx);
 if (ch != '\n' || last != '\n')
 {
 argBuf.append(ch);
 last = ch;
 }
 }
 return argBuf.toString();
}

```
- Identify the basic blocks, their entry points and exit points. Draw the control flow graph. (08 Marks)
- c. Explain the terms: walk through S and inspection of code. (04 Marks)
- 3 a. Illustrate the complexity of test selection problem, with an example. (04 Marks)  
 b. What is equivalence partitioning? How are the various types of variables partitioned? Give one example to each. (08 Marks)  
 c. Explain with an example the process of boundary value analysis. (08 Marks)
- 4 a. What is cause-effect graphing? Explain the generic procedure to generate lists from cause effect graphing. Show the basic elements of cause effect graphing. (10 Marks)  
 b. Define the following three predicate testing criteria:  $\forall$  BOR-, BRO-, BRE-. Write the procedure to generate BOR- constraint set. (10 Marks)

PART - B

- 5 a. What are the differences between functional and structural testing? (04 Marks)  
 b. Show with an example, how statement adequacy criterion is not sufficient to identify faults in the code. (08 Marks)  
 c. What is multiple condition/decision coverage criteria? Illustrate how this reduces the no. of test cases required to test a compound condition. (08 Marks)
- 6 a. Define the following giving examples:  
 i) Definition of a variable ii) Use of a variable  
 iii) Definition of clear path iv) Direct data dependency. (08 Marks)  
 b. Illustrate the generation of spurious execution paths while data flow analysis through procedure calls. (08 Marks)  
 c. Give an example when DU paths can be exponential and explain how. (04 Marks)
- 7 a. Explain the following terms:  
 i) Test case ii) Test case specification iii) Test obligation iv) Test suite  
 v) Test or test execution vi) Adequacy criterion. (06 Marks)  
 b. Write a note on Scaffolding (07 Marks)  
 c. Explain with example:  
 i) Test oracle  
 ii) Comparison based oracle  
 iii) Partial oracle. (07 Marks)
- 8 Write short notes on:  
 a. System testing  
 b. Acceptance testing  
 c. Regression testing  
 d. Clean room process model (20 Marks)

\* \* \* \* \*

|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|

**Eighth Semester B.E. Degree Examination, December 2010**  
**Software Testing**

Time: 3 hrs.

Max. Marks:100

*Note: Answer any FIVE full questions, selecting  
at least TWO questions from each part.*

PART - A

- 1 a. How do you measure software quality? Discuss correctness versus reliability pertaining to programs. (10 Marks)
- b. Discuss the types of metrics used in software testing and their relationship. (10 Marks)
- 2 a. Explain software testing and hardware testing over fault models, test domain and coverage. (04 Marks)
- b. Illustrate various test – generation strategies over a short note. (04 Marks)
- c. Classify testing techniques for dynamic testing, in detail. (12 Marks)
- 3 a. Consider an application program of your choice and condition. Partition the input domain using unidimensional and multidimensional partitioning. Construct two sets of test – data. Test for the above, using the equivalence classes. (16 Marks)
- b. Write short notes on :  
i) Boundary – value analysis ; ii) Category – partition method. (10 Marks)
- 4 a. Devise the procedure for generation of test, using cause – effect graphing. (10 Marks)
- b. What is predicate testing, its fault model and testing criteria? (10 Marks)

PART - B

- 5 a. List the different elements in control flow. Discuss them with regard to testing, adequacy criterion and coverage. (16 Marks)
- b. Explain the procedure call testing. (04 Marks)
- 6 a. Describe definition – use pairs with a suitable example. (06 Marks)
- b. What is reaching definition? Illustrate with an algorithm by applying flow equation. (06 Marks)
- c. Define the various data flow testing criteria. (08 Marks)
- 7 a. Define the following : i) Test case ; ii) Test case specification ; iii) Test obligation ; iv) Test suite ; v) Test execution ; vi) Test adequacy criterion. (06 Marks)
- b. What is scaffolding? Describe generic and a application specific scaffolding. (08 Marks)
- c. Briefly explain the test oracles. (06 Marks)
- 8 Write short notes on the following :  
a. Integration testing  
b. System testing  
c. Acceptance testing  
d. Regression testing. (20 Marks)

\* \* \* \* \*

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

[www.vtuCS.com](http://www.vtuCS.com)