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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)

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