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06IS81

Eighth Semester B.E. Degree Examination, June 2012

Software Testing

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. Distinguish between errors, faults and failures. Mention examples of errors in various fields of human endeavor. **(10 Marks)**

b. Explain with a neat diagram, a test and debug cycle. **(10 Marks)**

2 a. What is control flow graph? Explain how to construct CFG for the following program:

```
1. begin
2. int x, y, power ;
3. float z ;
4. input (x, y) ;
5. if (y < 0)
6. power = –y ;
7. else
8. power = y ;
9. z = 1
10. while (power ! = 0) {
11. z = z * x ;
12. power = power – 1 ;
13. }
14. if (y < 0)
15. z = 1/z ;
16. output (z) ;
17. end
```

(10 Marks)

b. Explain various types of testing depending on the life cycle phase of the software development in which various activities occur. **(10 Marks)**

3 a. List informal and rigorously specified requirements test selection techniques. **(04 Marks)**

b. Explain the systematic procedure for equivalence partitioning by considering a boiler control system. **(10 Marks)**

c. What is category-partition method? Write a diagram which illustrates the different steps in the category-partition method. **(06 Marks)**

4 a. What is cause-effect graphing? Give the generic procedure for the generation of tests using cause-effect graphing. **(06 Marks)**

b. Explain missing or extra Boolean variable faults by giving an example. **(06 Marks)**

c. Give a procedure for generating a minimal constraint set from a predicate possibly containing non singular expressions. **(08 Marks)**

PART – B

5 a. Explain the following testing concepts used in structural testing:
   i) Statement testing
   ii) Branch testing. **(10 Marks)**

   b. What is cyclomatic complexity? Explain path testing by considering binary search logic. **(10 Marks)**

6 a. Explain data flow testing criteria by considering your own example. **(10 Marks)**

   b. Explain data flow analysis with arrays and pointers, with relevant examples. **(10 Marks)**

7 a. What is adequacy criterion? Explain how adequacy criteria are just imperfect but useful indicators of inadequacies by giving your own project example. **(10 Marks)**

   b. What is scaffolding? Explain generic versus specific scaffolding by giving relevant examples. **(10 Marks)**

8 a. Explain core steps of SRET by giving block diagram. **(10 Marks)**

   b. Discuss and compare system, acceptance and regression testing. **(10 Marks)**

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