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06CS842

Eighth Semester B.E. Degree Examination, December 2011
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. Define software quality and quality attributes. Explain briefly. **(08 Marks)**

b. Define testing and debugging. With a neat diagram, explain a test and debug cycle briefly. **(10 Marks)**

c. Define the terms : i) Correctness ; ii) Reliability. **(02 Marks)**

2 a. Define control flow graph (CFG). Draw the CFG for x^y (x to the power y) program and write the algorithm, basic block and complete paths. **(12 Marks)**

b. Briefly discuss the defect management system. **(08 Marks)**

3 a. Discuss in detail boundary - value analysis with an example. **(08 Marks)**

b. What are the various steps involved in category - partiction methods? With the neat diagram explain these steps briefly. **(12 Marks)**

4 a. Describe cause – effect graphing, with an example and also write the procedure used for the generating tests using cause – effect graphing. **(08 Marks)**

b. Explain briefly, what are the notations used in cause – effect graphing. **(08 Marks)**

c. Explain the three classes of faults for a predicate testing. **(04 Marks)**

PART – B

5 a. Define the following terms :
i) Statement adequacy criteria ; ii) Statement coverage ; iii) Condition adequacy criteria ;
iv) Condition coverage ; v) Path adequacy criteria ; vi) Path coverage. **(09 Marks)**

b. Define infeasability problem. Explain with an example. **(05 Marks)**

c. Compare the subsumption relation among structural test adequacy criteria. **(06 Marks)**

6 a. List out the DU and DU pair for the following procedure :

```
i)    public int gcd (int x, int y) {
ii)   int tmp ;
iii)  while (y! = ϕ) {
iv)   tmp = x% y ;
v)    x = y ;
vi)   y = tmp ;
vii)  }
viii) return x ;
ix)   }
```

(06 Marks)

b. Draw the CFG and data dependency graph for the Q.6(b) procedure. **(08 Marks)**

c. Write a note on DF testing criteria. **(06 Marks)**

7 a. Define the following testing terms in brief as stated by IEEE :
i) Test case ; ii) Test case specification
iii) Test suite ; iv) Test or test execution. **(04 Marks)**

b. Define scaffolding and it's purpose with an example. **(04 Marks)**

c. Write short notes on :
i) Adequacy criteria ; ii) Test oracles ; iii) Self checks as oracles. **(12 Marks)**

8 a. Describe the dependability properties in detail. **(12 Marks)**

b. Explain in detail any four integration testing strategies. **(08 Marks)**

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