

**B.E / B.Tech DEGREE EXAMINATIONS, NOVEMBER 2012**

**SEVENTH SEMESTER**

**R – 2008**

**COMPUTER SCIENCE AND ENGINEERING /**

**INFORMATION TECHNOLOGY**

**IT9401: SOFTWARE TESTING**

**TIME: THREE HOURS**

**MAXIMUM: 100 MARKS**

**ANSWER ALL QUESTIONS**

**PART A – (10 X 2 = 20 Marks)**

1. What is fault localization?
2. Define software quality.
3. State the difference between white box and black box testing.
4. What is boundary value analysis? Give example.
5. State the purpose of regression testing.
6. What is alpha testing?
7. What are milestones? What do managers use them to achieve?
8. Define a work breakdown structure.
9. State the advantages of using automated tools for software testing.
10. What is coupling?

**PART B – (5 X 16 = 80 Marks)**

11. "Principles play an important role in all engineering disciplines and are usually introduced as part of an educational background in each branch of engineering". List and discuss the software testing principles related to execution-based testing.

(16)

12. a. i. What is a cause-effect graph? Consider the following causes and effects for a simple ATM banking transaction system:

Causes (inputs)

- C1: Command is credit
- C2: command is debit
- C3: account number is valid

- C4: transaction amount is valid

Effects

- E1: Print “invalid command”
- E2: Print “ invalid account number”
- E3: Print “debit amount not valid”
- E4: debit account
- E5: Credit account

Model a cause-effect graph for the above. (10)

ii. What is equivalence class partitioning? Explain with an example. (6)

(OR)

b. i. Consider the following fragment of code:

```
i = 0;
while (i < n-1) do
    j = i + 1;
    while (j < n) do
        if A[i] < A[j] then
            swap (A[i], A[j]);
        end do;
    i=i+1;
end do;
```

Identify bug (s) if any in the above program segment, Modify the code if you have identified bug (s). Construct a control flow graph and compute Cyclomatic complexity. (10)

ii. What is a test case? Give examples. (6)

13. a. i. What is unit testing? Explain with an example. (6)

ii. What is integration testing? Explain with examples the different types of integration testing. (10)

(OR)

b. Explain with examples the process of testing object oriented systems. (16)

14. a. What is a test plan? List and explain the test plan components. (16)

(OR)

b. i. Explain the process of reporting test results. (12)

ii. List the skills needed by a test specialist. (4)

15. a. i. What is software test automation? State the major objectives of software test automation. (8)

ii. Explain product metrics and process metrics with examples. (4)

iii. What is a quality metric? Give any four examples of quality metrics. (4)

(OR)

b. What are the requirements for a test tool? Give an example for a testing tool and explain the features of the same. (16)

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