23073

M. Tech. 2nd Semester (Computer Engg.)
Examination – January, 2012

SOFTWARE VERIFICATION VALIDATION & TESTING

Paper : MTCE - 608- A

Time : Three hours]   [Maximum Marks : 100

Before answering the question, candidates should ensure that they have been supplied the correct and complete question paper. No complain in this regard, will be entertained after examination.

Note :   Attempt any *five* questions, all questions carry equal marks.

1. (a) What is a good test case ? Explain various testing principles.   10

   (b) What is failure ? What is testing methodology ? Explain testing life cycle model.   10

2. (a) What is meant by effective testing ? What should be testing psychology ? Discuss various limitations of testing.   10

(b) Explain the difference between software verification and validation. Also discuss the activities performed in each. 10

3. Explain the following with the help of suitable example : 10 × 2 = 20

   (a) Verification of Architectural Design

   (b) Verification of Data Design

4. (a) What is boundary value analysis ? Explain with the help of suitable example. 8

   (b) You are given a list of 10 numbers in order. A binary search routine to search a particular number in the given list is written. Give the list of test cases under equivalence class portioning to test this binary search routine. 12

5. (a) What is mutation testing explain with the help of suitable example. 8

   (b) Given the following code, draw the control flow graph and determine the test cases for data flow testing : 12

   ```
   cin >> a >> b
   if (b > a) {
       x = b;
       if (b > 20){
           x = x + 9;
   ```

```
        }
        else {
            x = x + 1;
        }
        x = x + 1;
    }
    else {
        x = a;
        if ( a > 20) {
        x = x + 15;
        }
        x = x-5;
    }
    if (b > a + 20)
    {
        x = 20;
    }
    cout << x;
```

6. Explain the followings : $5 \times 4 = 20$

   (a) Technical Review

   (b) Inspection Process

   (c) Structured Walkthrough

(d) Advantages of Static Testing

7. (a) What is integration testing ? What types of errors are detected during integration testing ? 10

(b) Explain stress testing and performance testing. What is the difference between two ? 10

8. Explain the following with the help of suitable example : 10 × 2

(a) Reducing number of test cases

(b) Testing metrics