Software Testing & Quality Assurance

Practice Set

Target Group : 3rd Year B.Tech

1. Explain Alpha Testing, Beta Testing, Unit Testing, Integration Testing, System Testing, Regression Testing.
2. Explain White Box Testing with its applications, challenges, merits and demerits.
3. Explain Black Box Testing with its applications, challenges, merits and demerits.
4. Explain Debugging with its tools.
5. Explain Cyclomatic Complexity or Macabe’s Path Method with examples.
6. Explain Manual and Automation Testing.
7. Explain Software Quality Assurance with examples.
8. Discuss Statement Coverage, Conditional Coverage with its formula and applications.
9. Explain CMM models with applications.
10. Explain Control flow testing and data flow testing.
11. Explain review, inspections and walkthrough.
12. Discuss check points with examples.
13. Discuss equivalence partitions with examples.
14. Explain ISO 9000 models with various versions.
15. Explain Static Testing.
16. Explain Junit with examples.
17. Discuss Junit Annotations with its applications.
18. Discuss Junit with simple programs to verify unit and integration testing.
19. Discuss Selenium.
20. How software bugs affects the organizations like Meta or Google or banking systems.
21. Explain Du, Dc, DD graph, path graph and cyclomatic complexity with applications.
22. Explain Boundary value analysis and robust case analysis of the triangle program/Next date program.
23. Explain equivalence class analysis of triangle program or next date program.
24. Find the Cyclomatic Complexity for the C program segment:-

    ```
    while (first <= last)
    {
    if (array [middle] < search)
    first = middle +1;
    ```

```
else if (array [middle] == search)
found = True;
else last = middle – 1;
middle = (first + last)/2;
}
if (first < last) not Present = True;
```

25. Find the Cyclomatic Complexity for the following Code:

```
while (m<n)
if (x>y ) and (a<b) then
a=a+1
y=y-1
end if
m=m+1 end while
```

26. Consider the following method :

Find the test sets for Full Statement Coverage and Full Branch Coverage.

```
1. int f(int m, int n, boolean x, boolean y)
2. {
3. int res=0;
4. if(m<0) {res=n-m;}
5. else if(x || y) {
6. res= -1;
7. if(n==m) {res =1;}
8. }
9. else {res=n;}
10. return res;
11. } /*end of f */
```

27. Write a program/main function in C/Java to enter a date, month and year and find out if it’s a valid date or not. Write test cases to for Full Code Coverage of the Code for the program you built.

28. Write a test case in Junit and Test it using Junit framework and libraries. You can use the following tutorials regarding Junit from this links:-

1. https://www.javatpoint.com/junit-tutorial
2. https://www.guru99.com/create-junit-test-suite.html
3. https://www.tutorialspoint.com/junit/junit_suite_test.htm