

(Please write your Exam Roll No.)

Exam Roll No. 09 915017 21 6

END TERM EXAMINATION

SEVENTH SEMESTER [B.TECH.] NOVEMBER-DECEMBER 2018

Paper Code: ETCS-403 Subject: Software Testing and Quality Assurance

Time: 3 Hours

Maximum Marks: 75

Note: Attempt any five questions including Q.No 1 which is compulsory.

Question 1. Answer following in brief (Any five):

(5*5=25)

- Write a note on Reliability testing, exhaustive testing, Alpha testing, Beta Testing, Stress Testing, Regression Testing, Performance Testing, Acceptance Testing.
- Compare Boundary Value Analysis, Robustness Testing, Worst-Case Testing and Robust Worst-Case Testing in terms of the number of test cases generated, time complexity, and efficiency.
- What is zero defect software? Are they feasible? Explain the concept of fish bone/Ishikawa diagram?
- Differentiate between object oriented testing and conventional testing. What are stubs and drivers? Why do we need them?
- What is meant by COPQ in Six Sigma? What is Pareto Principle? Name the different kinds of variations used in Six Sigma? Name some of the Quality Management tools in Six Sigma.
- Who forms the part of Six Sigma implementation team?
- Explain the V model of testing and its significance in today's world. What are the Milestones?

Question 2

- Differentiate verification and validation.
- Define software process. Discuss the role of process in software quality.
- List the people who are associated with testing.

(4+4+4.5)

Question 3

- Give the information about the test case.
- How would you classify the types in defect classes?
- Define mistake, fault, bug, defect and failure and Describe how the fault manifest itself as a failure?

(4+4+4.5)

Question 4

- In path testing what is the difference between Function coverage, Statement coverage and Path coverage?
- Discuss the significance of decision tables in testing. What is the purpose of a rule count? Explain the concept with the help of an example.
- What is the cause-effect graphing technique? What are basic notations used in a cause effect graph? Why and how are constraints used in such a graph? What are the disadvantages associated with cause-effect graph?

(4+4+4.5)

Question 5

- What is quality of design & quality of conformance? What impact ratings have you used for errors in your testing? What coding standards should follow by developer for avoiding the errors in testing?
- What is the role of team leader in SQA activities? What is acceptance testing? Differentiate between regression testing & retesting?

(6+6.5)

Question 6

- Consider the program for the determination of the division problem. Its input is a triple of positive integers (mark1, mark2, mark3) and values for each of these may be from interval [0, 100]. The program is given in Figure 3.15. The output may have one of the options given below:

- Fail
- Third division
- Second division
- First division
- First division with distinction
- Invalid marks

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ETCS-403

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Find all du-paths and identify those du-paths that are definition clear. Also find all du-paths, all-uses and all-definitions and generate test cases for these paths.

- b. Consider the program for finding a given year as leap year or not. Century years may be considered separately. Find all du-paths and identify those du-paths that are definition clear. Also find all du-paths, all-uses and all-definitions and generate test cases for these paths. (6+6.5)

Question 7

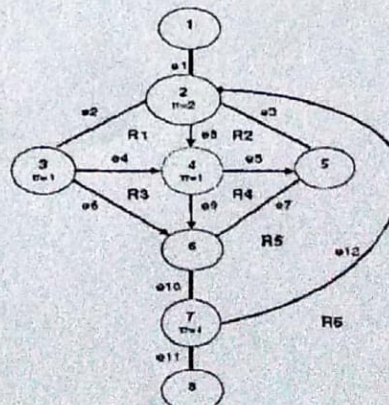
(12.5)

- a. Differentiate between black box and white box testing by giving three example of each type of testing.
b. Read the following program and generate boundary value test cases. Make assumptions regarding the range.

```
1. #include<stdio.h>
2.
3. int main()
4. {
5.     int n, i = 3, count, c;
6.
7.     printf("Enter the number of prime numbers required\n");
8.     scanf("%d",&n);
9.
10.    if ( n >= 1 )
11.    {
12.        printf("First %d prime numbers are :\n",n);
13.        printf("2\n");
14.    }
15.
16.    for ( count = 2 ; count <= n ; )
17.    {
18.        for ( c = 2 ; c <= i - 1 ; c++ )
19.        {
20.            if ( i%c == 0 )
21.                break;
22.        }
23.        if ( c == i )
24.        {
25.            printf("%d\n", i);
26.            count++;
27.        }
28.        i++;
29.    }
30.
31.    return 0;
32. }
```

Question 8

- a. What is Cyclomatic complexity? What are the various methods to find the Cyclomatic complexity? Who proposed it? What is its significance?
b. Find the Cyclomatic complexity for the following program: (6+6.5)



ETCS-403