PAPER ID-410240

Roll No:

MCA
(SEM III) THEORY EXAMINATION 2021-22
SOFTWARE TESTING & QUALITY ASSURANCE

Time: 3 Hours   *Total Marks: 100*

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1.   Attempt *all* questions in brief.   2 x 10 = 20

a) Define any two limitations of testing.

b) Define Faults, Errors and Failures.

c) For a function of 'n' variables, boundary value analysis generates _____ combinations

d) Explain how many portions/partitions are available in a decision table?

e) "Selective re-test is different from retest-all" illustrate with an example.

f) Determine the role of risk matrix for the reduction of test cases?

g) If parents are [11111111] and [00000000] and k = 5, generate the offspring's (children) after the application of crossover operator.

h) Examine different popular debugging approaches. Which one is more popular & why.

i) Outline the key areas for testing a web application.

j) Summarize User Interface Testing Checklist.

SECTION B

2.   Attempt any *three* of the following: 10 x 3 = 30

a.   What are the objectives of testing? Why is the psychology of the testing person important?

b.   Discuss various types of functional testing techniques? Explain any one with the
     help of an suitable example.

c.   Identify the reasons which are responsible for changes in the software. Comment on
     the statement "change is inevitable."

d.   Classify Black-box testing and White-box testing in detail.

e.   Illustrate class testing in detail? How Object Oriented Integration Testing is different from normal Integration testing.

SECTION C

3.   Attempt any *one* part of the following: 10 x 1 = 10

(a) Discuss the significance of the V-shaped software life cycle model and also establish
     the relationship between its development and testing parts.

(b) Write a program to add two digit integers. Can we test the program completely? If so,
     how many test cases are required? Assume that each test case can be executed
     and analyzed in one second; how long would it take to execute all test cases?

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4.   **Attempt any *one* part of the following:**   **10 x 1 = 10**

   (a)   Explain cause-effect graphing technique and basic notations used in a cause effect graph.

   (b)   Consider a program for the determination of the largest amongst three numbers. Its input is a triple of positive integers (say x, y and z) and values are from interval [1, 300].Design the robust test cases and worst case test cases for this program.

5.   **Attempt any *one* part of the following:**   **10 x 1 = 10**

   (a)   Illustrate the various steps of the regression testing process. Which step is the most
   Important and why?

   (b)   Determine the difference between general test case prioritization and version specific test case prioritization? Discuss any prioritization technique with the help of an example.

6.   **Attempt any *one* part of the following:**   **10 x 1 = 10**

   (a)   Demonstrate the functionality of genetic algorithms with the help of a flowchart.

   (b)   Examine the features of static and dynamic test data generation.

7.   **Attempt any *one* part of the following:**   **10 x 1 = 10**

   (a)   What is the difference between quality assurance, quality control and testing?

   (b)   What is the QA testing life cycle? Should QA's resolve production issues?