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END SEMESTER EXAMINATION : NOV. – DEC., 2017

SOFTWARE TESTING AND QUALITY ASSURANCE

Time : 3 Hrs. *Maximum Marks : 70*

Note: ***Attempt questions from all sections as directed.***

SECTION – A (30 Marks)

Attempt any **five** *questions out of* **six.**
Each question carries **06** *marks.*

1. (a) Discuss Verification & Validation Model with diagram. (3)

   (b) Software failures can cause losses. Give three consequences of software failures. (3)

2. What are the vertices of the 'triangle of resources'?

3. (a) Discuss the various origins of Defects. (3)

   (b) Justify the importance of traceability matrix. (3)

4. What is Mutation Testing? What is the purpose of mutation score? Why are higher order mutants not preferred.

P.T.O.

5. What is the role of quality assurance in software development? Differentiate between quality assurance and quality control.

6. Identify and describe various functional and non-functional requirements for a simple banking application.

SECTION – B (20 Marks)

Attempt any two *questions out of* three.
Each question carries 10 *marks.*

7. (a) Consider the following code :–

```
pos_sum(a, no_of_entries, sum)
    sum = 0
    int i=1
    while(i <= no_of_entries)
        if (a[i]>0)
            sum = sum + a[i]
        endif
    i=i+1
    end while
end pos_sum
```

Construct control flow graph for the above code. (3)

(b) Calculate cyclomatic complexity for the same.

(c) Design test cases that satisfy the decision coverage criterion. (3)

(4)

8. (a) Define Load, Performance and Stress testing. (3)

(b) What are the goals of a Performance testing of a mobile application? Design test cases for the same. (7)

9. Suppose you are part of testing team that test a module that allows a user to enter new widget identifiers into a widget data base. The input specification for the module states that a widget identifier should consist of 3-15 alphanumeric characters of which the first two must be letters. We have three separate conditions that apply to the input: (i) it must consist of alphanumeric characters, (ii) the range for the total number of characters is between 3 and 15, and, (iii) the first two characters must be letters. You are given the task to focus on planning and selecting boundary value analysis for the widget.

Write test cases for the same and show results from their execution.

P.T.O.

SECTION – C (20 Marks)

(Compulsory)

10. (a) Admission to a professional course is subject to following conditions :

(i) marks in mathematics >=60

(ii) marks in physics >=50

(iii) marks in chemistry >=40

(iv) total in all three subjects >=200

(v) or total in mathematics and physics >=150

If aggregate marks of an eligible candidate are more than 225. He/she will be eligible for honors course; otherwise he/she will be eligible for pass course. The program reads the marks in the three subjects and generates the following outputs :

(i) Not eligible

(ii) Eligible to pass course

(iii) Eligible to honors course

Design test cases for the above program using decision table based testing technique. (10)

(b) What are the primary objectives when we test software? Briefly outline the requirement specification of an ATM. How will you prepare test cases? Write the test cases on ATM Transactions? (5)

(c) Discuss Tester's role in Software Development Organization. (5)

(500)