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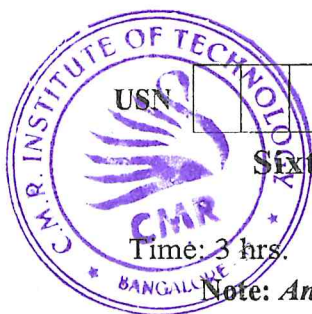**Sixth Semester B.E. Degree Examination, July/August 2022**
Software Testing

Time: 3 hrs.   Max. Marks: 100

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1 a. Explain the use of Venn diagram in Software Testing with diagrams. **(08 Marks)**
   b. List out the advantages and disadvantages of specification based testing technique. **(06 Marks)**
   c. Write a improved version of Triangle program that takes 3 integers as sides of the triangle and finds whether the triangle is Scalene, Isosceles or Equilateral. **(06 Marks)**

OR

2 a. Explain various software quality attributes. **(08 Marks)**
   b. What is a Test case? What does the information a test case contain? **(04 Marks)**
   c. Write a complete program for NextDate problem which takes Day, Month, and Year as input and finds the next date. **(08 Marks)**

Module-2

3 a. Briefly explain normal and worst case robust boundary value analysis testing with input domain diagrams for a function of two variables. **(08 Marks)**
   b. What is a Decision Table? Explain each term related to it with example diagram. **(06 Marks)**
   c. Explain about Mutation Analysis used in Fault Based Testing. **(06 Marks)**

OR

4 a. Write the test cases for the C function which takes two integers as input and finds the maximum of two integers using Robust Boundary Value Analysis. Assume the inputs are in the range of 1 to 35000. **(08 Marks)**
   b. Define Equivalence class testing. Write weak robust equivalence class test cases for commission problem. **(08 Marks)**
   c. Define the following terms with respect to fault based testing
      i) Equivalent Mutant   ii) Coupling Effect. **(04 Marks)**

Module-3

5 a. Define DD path graph. Draw the DD path graph for triangle problem. **(06 Marks)**
   b. Consider the following program. Find the DU paths for the variables staffDiscount, totalPrice, finalPrice, discount and price. Verify whether these DU paths are definition clear.

```
1.    program Example ( )
2.    var staffDiscount, totalPrice, finalPrice, discount, Price
3.    staffDiscount  = 0.1
4.    total Price   = 0
5.    input(Price)
6.    while(Price ! = – 1) do
7.    totalPrice = totalPrice + Price
8.    input(Price)
9.    do
10.   print ("TotalPrice :" + totalPrice)
```

```
11.  if (totalPrice>15.00) then
12.  discount = (staffDiscount *totalPrice + 0.50)
13.  else
14.  discount = (staffDiscount*totalPrice)
15.  fi
16.  print("Discount:" + discount)
17.  finalPrice  = totalPrice – discount
```
(10 Marks)

c. What is scaffolding? What are the components of scaffolding? (04 Marks)

OR

6 a. Explain McCabe's basis path testing with Triangle problem. (08 Marks)

b. Consider the following C function which encodes the string in the following manner. If the string character is + or – or *, it is replaced with space ' ', if it is an uppercase character, it is replaced with lowercase, other alphanumeric characters are simply copied into destination string. Draw the control flow graph for the program. Find out the statement converge and node converge % from control flow graph for the test suite

To = {"test ", "test**ing", "test + –"}.

```
   i)   const char * encode (char * str){
  ii)   int i = 0 ;
 iii)   char *str1 = str ;
  iv)   char en_str [25] ;
   v)   while (str1[i] ! = '\0'){
  vi)   if (str1[i] = = '*' || str1[i] == '+' || str 1[i] == '–')
 vii)   en_str[i] = ' ' ;
viii)   else if (str1[i] >= 65 && str1[i] <= 90)
  ix)   en_str[i] = str1[i] +32;
   x)   else
  xi)   en_str = str1 [i] ;
 xii)   i++ ;
xiii)   }
 xiv)   en_str [i] = '\0' ;
  xv)   return (en_str) ;
 xvi)   }
```
(08 Marks)

c. What are self check oracles? Compare self check oracles with comparison based oracles. (04 Marks)

Module-4

7 a. Explain about the following basic principle of Testing process framework.
   i) Sensitivity
   ii) Restriction. (08 Marks)

b. What are dependability properties in testing process framework? Explain with diagram. (08 Marks)

c. Write short notes on Test design specification document. (04 Marks)

OR

8 a. Explain in detail about the Risk management interms of process and quality management. List out various Risks and their control tactics in both. **(10 Marks)**

   b. Write short notes on the following :
      i) Organizing documents
      ii) Test and analysis Reports. **(10 Marks)**

Module-5

9 a. Compare Unit, Integration and System Testing. **(06 Marks)**

   b. Explain in detail about Integration Testing strategies. **(08 Marks)**

   c. Write short notes on Test case prioritization and selective execution. **(06 Marks)**

OR

10 a. Compare system, acceptance and regression testing. **(04 Marks)**

   b. Explain various alternate lifecycle models in detail. **(10 Marks)**

   c. Write short notes on Regression Testing. **(06 Marks)**

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