December 2023

BCA 6thSEMESTER

Software Testing (BCA-17-307)

Time: 3 Hours

Max. Marks:75

Instructions: 1. *It is compulsory to answer all the questions (1.5 marks each) of Part -A in short.*

2. *Answer any four questions from Part -B in detail.*

3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART –A

Q1 (a) What is the difference between software engineering and software testing? (1.5)

(b) Define the terms: Error, Fault, Failure. (1.5)

(c) What are software metrices? What is the need of these metrices? (1.5)

(d) What is equivalence class portioning testing? (1.5)

(e) Differentiate between Alpha and Beta testing. (1.5)

(f) What is the difference between load and stress testing? (1.5)

(g) What is mutation testing? (1.5)

(h) What is the difference between functional testing and system testing? (1.5)

(i) What is the psychology of the testing? (1.5)

(j) What is the need of verification and validation? (1.5)

PART-B

Q2 (a) What are the objectives of software testing? What is the need of testing? What are the limitations of testing?Briefly discuss the different levels of testing with examples. (9)

(b) Discuss in detail the life cycle of a bug. (6)

Q3 (a) Discuss V&V activities in detail. (9)

(b) What is regression testing? What are various regression testing techniques? (6)

Q4 (a) A whole seller has three commodities to sell and has three types of customers. Discount is given as per the following procedure: (9)

(i) For DGS & D orders, 10% is given irrespective of the value of the order.
(ii) For orders of more than Rs. 50,000 agents get a discount of 15% and the retailer gets a discount of 10%.
(iii) For orders of Rs. 20,000 or more and up to Rs. 50,000 agents get 12 % and retailer gets 8% discount.

(iv) For orders of less than Rs 20, 000, agents get 8% and the retailer gets 5% discount. (6)

The above rules do not apply to the furniture items wherein a flat rate of 10 % discount is admissible to all customers irrespective of the value of the order.

Design the test cases for this software using decision table-based testing.

(b) What are Stubs and Drivers? What are the benefits for designing them? (6)

Q5 (a) A program reads three numbers A, B and C within range [1,100] and prints the smallest number. Design test cases for this program using BVC and robust testing. (9)

(b) Explain in detail how the testing of an object-oriented software is differed from the non -object oriented software. (6)

Q6 (a) Consider the following program: (9)

```c
#include<stdio.h>
main ()
{
        int num, small;
        int i, j, sizelist, list[10], pos, temp;
        printf("\Enter the size of the list:");
        scanf("%d", &sizelist);
        for(i=0; i<sizelist;i++)
        {
                printf("enter the number");
                scanf("%d", &list[i]);
        }
        for(i=0; i<sizelist; i++)
        {
                small = list[i];
                pos = i;

                for(j=i+1; j<sizelist; j++)
                {
                if(small > list[j]
                        {
                                small = list[j];
                                pos =j;
                        }
                }
                temp = list[i];
                list[i] = list[pos];
                list[pos] = temp;
        }
        printf("\nList of the numbers in ascending order:");
        for (i=0; i<sizelist; i++)
                printf("\n%d", list[i]);
        getch();
}
```

(a) Draw the DD graph for the program.
(b) Calculate the cyclomatic complexity of the program using all methods.
(c)List all independent paths.
(d)Design all test cases from these independentpaths.

(b) Explain in detail how the testing of a web-based application can be done? (6)

Q7 (a) What is static testing? What is its need? Discuss in detail the various static (9)
testing techniques.
(b) Discuss various software testing principles. (6)