Subject Code: 32125 / Department Level Optional Course-I: Software Testing & Quality Assurance

TE Semv R-2019 (C Scheme) ECS Dec'2023

4|12|2023

Time (3 Hours) **[Total Marks: 80]**

N.B.: (1) Question No. 1 is Compulsory.

(2) Attempt any three questions out of the remaining five.

(3) Each question carries 20 marks and sub-question carry equal marks.

(4) Assume suitable data if required.

1. (a) Differentiate between Verification and Validation. (5)

   (b) Explain Regression Testing. (5)

   (c) What is meant by testing group hierarchy and explain the role of each member in hierarchy? (5)

   (d) Explain Object Oriented Testing. (5)

2. (a) Draw and explain In detail software Testing Life Cycle. (10)

   (b) A program reads three numbers, A, B, and C, within the range [1, 50] and prints the largest number. Design test cases for this program using BVC and robust testing methods. (10)

3. (a) Explain in detail need and classification of software metrices. (10)

   (b) Explain the need of automation testing also mention guidelines to be considered while selecting the testing tool. (10)

4. (a) Describe MC-Calls Quality factors and Criteria. (10)

   (b) Explain test suite minimization and its benefits in detail. (10)

5. (a) Explain Agile testing in detail. (10)

   (b) Consider the following program that reads in a string and then checks the type of each character. (10)

```
main()
{
char string [80];
int index;
1. printf("Enter the string for checking its characters");
2. scanf("%s", string);
3. for(index = 0; string[index] != '\0'; ++index)
```

```
{
4. if((string[index] >= '0' && (string[index] <='9'
5. printf("%c is a digit", string[index]);
6. else if ((string[index] >= 'A' && string[index] <='Z')) ||
   ((string[index] >= 'a' && (string[index] <='z')))
7. printf("%c is an alphabet", string[index]);
8. else
9. printf("%c is a special character", string[index]);
10. }
11. }
```

(a) Draw the DD graph for the program.

(b) Calculate the cyclomatic complexity of the program using all the methods.

(c) List all independent paths.

(d) Design test cases from independent paths.

6. (a) Write short note on Six-Sigma Characteristics and Methodologies.

(b) Draw and Explain Bug Life Cycle.

2AE962E453B326368F9D42C43A5496EF