(3·E· (J.T) CSem) -VII) CCB) Date -22|11|19

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

Note : Question No. 1 is compulsory.
Attempt Any Three from remaining questions.
Assume suitable data if required.

Q1

A. Explain the need of automation in testing ? Differentiate between manual testing and Automated Testing
10

B. What are Key elements of Test Management ? Explain the structure of testing group.
10

Q2 A. Classify different types of bugs based on Software development lifecycle **10**
B. A program reads three numbers, *A*, *B*, and *C*, with a range [1, 50] and prints the largest number. Design test cases for this program using equivalence class testing technique.
10

Q3 A. Discuss verification and validation activities. **10**
B. What is Mutation Testing ? Explain Mutation Testing Process **10**

Q4 A . Consider the program for calculating the factorial of a number. **10**
(a) Draw the DD graph for the program.
(b) Calculate the individual cyclomatic complexity number for main() and fact() and then,
the cyclomatic complexity for the whole program.

```
main()
{
int number;
int fact();
1. clrscr();
2. printf("Enter the number whose factorial is to be found out");
3. scanf("%d", &number);
4. if(number <0)
5. printf("Facorial cannot be defi ned for this number);
6. else
7. printf("Factorial is %d", fact( number));
8. }
int fact(int number)
{
int index;
1. int product =1;
2. for(index=1; index<=number; index++)
3. product = product * index;
4. return(product);
5. }
```

B. What is Test Plan ? Explain Different components of Test plan document. **10**

Q5 A. Explain challenges in Agile Testing   10
    B. Comment on regression testing process.   10

Q6.
Write Short Note on following   20
    A. Test point analysis
    B. Unit testing and   Integration testing
    C. Bug Lifecycle
    D. McCall's Quality Factors and Criteria