Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

V SEMESTER B.TECH. (INFORMATION TECHNOLOGY/COMPUTER AND COMMUNICATION ENGINEERING) END SEMESTER EXAMINATIONS, NOVEMBER 2017

SUBJECT: PROGRAM ELECTIVE I- SOFTWARE QUALITY ENGINEERING [ICT 4016]

REVISED CREDIT SYSTEM
(27/11/2017)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer ALL the questions.
- Missing data, if any, may be suitably assumed.

1A.	Illustrate with a neat diagram the software configuration management process for content management system.	5
1B.	Explain the challenges associated with embedded system programming with respect to the following metrics: a. Power dissipation b. Optimizing hardware	3
1C.	Discuss user centered design process for understanding the usability behavior of the customer.	2
2A.	What is black box testing? Explain different types of black box testing with suitable example?	5
2B.	Discuss with a neat diagram the microkernel architectural pattern for software systems that adapts to changing system requirements.	3
2C.	Describe the top down approach to FMEA (Failure Mode Effect Analysis) process.	2
3A.	Describe the guidelines to be followed to achieve safer C code.	5
3B.	With the help of function point model explain the steps followed in function point analysis.	3
3C.	Discuss the significance of the following MISRA C rules with an example. a. "No identifier name should be reused " b. "Floating-point expressions shall not be tested for equality or inequality"	2
4A.	With a neat diagram explain universal model of user interface to show how the system's content and functionality are ordered and categorized.	5
4B.	How does the principle of Service Oriented Architecture (SOA) enable IT department to transform from application centric view to process centric view? Describe the various phases of SOA testing.	3

4C. What is agile testing? Mention its advantages. 2

5A. Identify the lines of code which violates MISRA-C rules for the following code snippets. List out the violations and write the correct code as per MISRA-C rules 5

```
#include<stdio.h>
main()
{
int m=12, n=21,x,y;
const int ptr1,ptr2,ptr3;
printf("Value before swap m=%d \n and
n=%d",m,n");
swap(&m,&n);
sumptr(const int* ptr1,const int * ptr2,
cons tint * ptr3)
for(x=-1; x<=10; x++)
  {
    if(x < 5)
      continue;
    else
      x++;
      break;
    printf("x is %d",x);
  }
x=y=x++;
printf("x is %d size of x is %d",x,
sizeof(x)).
}
```

```
void swap(int* a, int* b)
{
int tmp;
tmp=*a;
*a=*b;
*b=tmp;
printf("values after swap%d,%d",m,n);
}
void sumptr(const int* ptr1,const int *
ptr2, cons tint * ptr3)
{
*ptr1=*ptr2+*ptr3;
}
}
```

5B. Explain various methods of Cloud testing that are prescribed as the best practices for an application developed on cloud platform. State the limitations of cloud testing. 3

5C. What is CMMI and what is the advantage of implementing it in an organization? 2