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, NOV/DEC 2016

SUBJECT: SOFTWARE QUALITY ENGINEERING [ICT 4016]

REVISED CREDIT SYSTEM
(05/12/2016)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitably assumed.

1A. Identify the lines of code which violates MISRA-C rules. Justify and correct the identified errors. **Note: Do not take the coding style into consideration**

```
#include "misra.h"
#define SQR ( x ) (  ( x ) * ( x ) )

#undef SQR ( x )
#define PI ( 3.14159265f )
void func91a ( )
{
#undef PI
SI_32 a = 3,b = 3,c = 3;
int i, j;
float d, k;
char Date  = "??-??-??";
char *input;
printf("Enter the value");
scanf("%f",d);
for(d=0; d<k; d++){
        i = i +1 ;
        j = j + 2;}
```

```
printf("Enter one of the option of the form
     \a, \b, \c");
scanf("%s",input);
switch(input) {
    case "\a": return i;
            break;
    case "\b": return j;
            break;
    case "\c": goto label;
            break;
    default:  break;
 }
 label: a= b+c;
 goto end;
 b = b+a;

end: return a;}
```

5

1B. Illustrate the concept of configuration management using SVN. **3**

1C. What constraints to be considered in embedded system design? **2**

2A. Explain the FMEA methodology with suitable illustrations. **5**

2B. With a relevant example explain the MISRA-C rule and coding standard for the following.

a. Conversions

b. Pointers and arrays

c. Comments **3**

2C. Define the term software quality model and explain how is it characterised? **2**

3A. Explain the process of software qualimetry integration into software development life cycle. **5**

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

3C. "Software architecture serves to be a vehicle for stakeholder communication". Justify this statement. **2**

4A. Explain the universal model of user interface. **5**

4B. Explain the advantages and disadvantages of pipes and filters architectural styles. **3**

4C. Given the following, how many test cases are required for statement coverage and branch coverage?

Switch PC on
Start "outlook"
IF outlook appears THEN
Send an email
Close outlook **2**

5A. Evaluate the "Microsoft word" application with respect to user experience honeycomb. **5**

5B. Discuss the different categories of performance testing. **3**

5C. Differentiate test driven development and unit testing. **2**