Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

VII SEMESTER B.TECH.

INFORMATION TECHNOLOGY/COMPUTER AND COMMUNICATION ENGINEERING

MAKE-UP EXAMINATIONS, NOV/DEC 2016

SUBJECT: PROGRAM ELECTIVE – III

SOFTWARE QUALITY ENGINEEERING [ICT 443]

REVISED CREDIT SYSTEM

(/ /2016)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ANY FIVE FULL** questions.
- Missing data may be suitably assumed.

1A. With suitable example explain the following software testing methods.

i. Condition Coverage Testing.
ii. Path coverage Testing **5**

1B. Discuss the schema of microkernel architectural pattern. **3**

1C. Evaluation metrics play a leading role in the quantitative quality control. Justify the statement with suitable reason. **2**

2A. With a neat diagram explain user experience honeycomb structure. Also evaluate the "MS Office" application with respect to user experience honeycomb. **5**

2B. Differentiate the following:

i. Promotion management and release management of configuration management activity.
ii. Assertions and Exceptions. **3**

2C. Define the following:

i. Configuration Item.
ii. Architectural Style. **2**

3A. Explain how to integrate qualimetry into software development life cycle? **5**

3B. What is the importance of software architecture? Explain. **3**

3C. Explain in brief about Industrial Domain Knowledge. **2**

4A. Identify the lines of code which violates MISRA –C rules. Justify the identified errors.

Note: Do not take the coding style into consideration.

i.

```
#include "misra.h"
static SI_32 i;
static SI_32 func21 ( SI_32 j ) ;
…
..
func21( SI_32 j ){ /*name of the
        function*/
SI_32 i = 1;
if ( j > 3 ) {
 SI_32 j = 4;
}
i = j;
..
}
return i;
}
```

ii.

```
#include "misra.h"
struct stag { uint16_t a; uint16_t b; };
struct stag a1 = { 0, 0 };
..
funct( SI_32 j ){       /*name of the
                          function*/
union stag a2 = { 0, 0 };
}
...
void foo(void) {
 struct stag { uint16_t a; };
}
```

5

4B. Differentiate the following:

i. Static testing and Dynamic Testing.
ii. Product Metric and Process Metric. **3**

4C. Explain the design challenges of Embedded system software. **2**

5A. What do you mean by quality attribute scenario? With a neat diagram explain the parts of quality attribute. **5**

5B. Explain the following MISRA rules with a suitable example**.**
*"*All members of a structure or union shall be named and shall only be access with their name*."* **3**

5C. Write a note on agile testing. **2**

6A. Discuss with a neat diagram the software architectural pattern which is applicable for the software processing systems that must be able to possess parallel computation. Write the CRC for the same. **5**

6B. With a suitable example explain the following MISRA rule.
"typedef names shall not be reused*"* **3**

6C. Explain the configuration management using SVN. **2**