Reg. No.										

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INSPIRED BY LIFE

MANIPAL INSTITUTE OF TECHNOLOGY, MANIPAL 576104

(Constituent College of Manipal University)

SEVENTH SEMESTER B.TECH. (IT) END SEMESTER EXAMINATION, DECEMBER – 2015
SUBJECT: PROGRAM ELECTIVE – III SOFTWARE QUALITY ENGINEEERING– ICT 443
(REVISED CREDIT SYSTEM)

TIME: 3 HOURS **01/12/2015** **MAX. MARKS: 50**

Instructions to candidates

- Answer any **FIVE FULL** questions.
- Missing data, if any, may be suitably assumed.

1A. Explain in detail the following Software Configuration Management frameworks for
   i. Naming Model
   ii. Storage and Access model

1B. Explain the principles of user interface design that are intended to improve the quality of user interface design.

1C. Write the MISRA-C violation for the code snippet; also write the correct code in compliance to the MISRA-C rule.

```
struct ident{  int  ident;  } ident;
```

(5+3+2)

2A. Discuss FMEA process that estimate the risk associated with the critical systems.

2B. Explain any two cloud testing tools with the steps involved in cloud testing.

2C. Suggest an architectural pattern that is suitable for building software for a speech recognition system. Justify your answer. (5+3+2)

3A. Illustrate with sample piece of code the following MISRA C rules.
   i. "Identifiers shall not simultaneously have both internal and external linkage in the same translation unit"
   ii. "The use of a tag shall agree with its declaration."
   iii. "*typedef* names shall not be reused"
   iv. "All declarations at file scope should be static where possible"

3B. Explain with a neat diagram the user centred design process.

3C. Compare and contrast defensive programming and pair programming. (5+3+2)

4A. Explain with suitable illustrations the three tiers of universal model of user interface.

4B. Illustrate with example how the test management tools help in easy capturing, cataloguing and administration of test cases.

4C. Mention the uses of work-bench testing and what are the tasks involved in it? (5+3+2)

5A. Explain how Availability tactic helps in preventing the faults from becoming failure.

5B. Explain the presentation style of MISRA-C rule, also list out the various classification of MISRA-C rule.

5C. Specify the various activities of agile testing process. (5+3+2)

6A. Identify the lines of code which violates MISRA-C rules. Justify and write the correct code as per MISRA-C rules.

//PROGRAM I

```
#include"misra.h"
main()
{
int x,y,z;
if(x==foo())
{
double x=3.0;
switch(x==0)
{
        case 0:
        x=y;
        case 1:
        case 2:
        x=z;
}
}
}
```

//PROGRAM II

```
#include"misra.h"
main()
{
UI_16 i=1U;
UI_16 j=3U;
string date;
int d,c;
printf("Enter the date in this '??-??-??'
format");
scanf("%date",&date);
for(int x=0;int y=0x<50;x++)
{
        printf("value of y is %d",y);
        y++;
}
if(x)
{
        F_64 d=F_64(i/j);
}
}
```

6B. Describe how Capability Maturity model helps in developing and refining an organization's software development process.

6C. What is ethnographic research in user interface design process? (5+3+2)