



**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.

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|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 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:                                                                                          | 3 |
|     | a. Power dissipation                                                                                                                                                                               |   |
|     | b. Optimizing hardware                                                                                                                                                                             |   |
| 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 "                                                                                                                                                          | 2 |
|     | b. "Floating-point expressions shall not be tested for equality or inequality"                                                                                                                     |   |
| 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

|                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre>#include&lt;stdio.h&gt; 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(&amp;m,&amp;n); sumptr(const int* ptr1,const int * ptr2, cons tint * ptr3) for(x=-1; x&lt;=10; x++) {     if(x &lt; 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)). }</pre> | <pre>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; } }</pre> |
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5

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