



Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)



V SEMESTER B.TECH (COMPUTER SCIENCE AND ENGINEERING) END SEMESTER EXAMINATIONS, NOV/DEC 2015

SUBJECT: SOFTWARE ENGINEERING(CSE -305)

DATE: 30-11-2015

REVISED CREDIT SYSTEM

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

✤ Answer ANY FIVE FULL questions.

Missing data, if any, may be suitably assumed.

1A. What is ubiquitous computing? Explain.	2M	
IB. Explain any four main framework activities defined by Personal Software Process(I	PSP).	
1C. Describe the Concurrent Process Model with a diagram.	4M 4M	
2A. Explain Feature Driven Development with a diagram.	4M	
2B.List any four core principles that focus on software engineering practice as a whole.	2M	
2C. Explain the System engineering hierarchy with a diagram.	4M	
3A. What problems make us understand that requirements elicitation is different? Descr	ibe	
briefly.	3M	
3B. Draw the use case diagram for SafeHome home security function.	2M	
3C. The following is an Internet Banking System:		
An account holder of State Bank of India registers online with his choice of Username a password to obtain an online account. He is allowed to make purchases from a list of or sites. He adds items to his cart on placing orders from any of these sites. Each order is g an order id and he makes payment for the order using his online account. Each order ha shipping charge of 2% and tax of 5%. This type of purchase is termed Online purchase. user can make transactions such as Utility Bill transaction, Electronic Fund Transfer Transaction & Balance enquiry transaction.	ind iline jiven s a The	
Draw the complete Class diagram showing the multiplicities, relationships between class	ses	
and the attributes and properties of all classes.	5M	
4A. What is Refactoring, Refinement, Functional Independence and Information Hiding	? 4M	
4B. Describe four important characteristics of a well formed Design Class.		
4C. Explain the COCOMO II Model.	2M	





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3M

5A. Draw the subsume hierarchy for program based adequacy criteria.

5B. List 6 main mutation operators used during mutation testing.

3M 5C. For the code snippet given below, draw the Control Flow Graph(CFG), numbering the program statements suitably. Write the numbered code snippet and also calculate the Cyclomatic Complexity for the CFG using the nodes and edges formula.

```
void changeroutine(int a[], int n, int pos){
```

```
int i, j=0, b[100], flag=1, pos;
 pos = n/2;
 cout <<"\nEnter the array elements:";
 for(i=0; i<n; i++)
       cin>>b[i];
 while(flag){
       if(b[ j ] > 10)
         a[ j ]=b[ j ];
       else{
         a[i]=b[i]-10;
         for(i=0; i < pos; i++)
               cout << a[i];
       }
       if(a[i] = = 0)
         flag=0;
       cout <<"\nThe whole array after changing is:";
       for(i=0; i<n; i++)
               cout << a[i] << "\n";
  }
  cout << "\nThe second array is:";
  for(j=0; j<n; j++)
       cout<<a[ j ]<<"\n";
}
```

4M

6A. List 4 subcharacteristics of the Quality characteristic of ISO 9126. 2M6B. Give the Transcendent, Value based and User based definitions of software quality. 3M 6C. Consider the following precedence relations between different activities of a Software Development Project. Draw the Gantt chart and activity on arrow network for the above project.

Activity	Duration	Constraints
Requirements	15	Nil
Initial Design	15	Requirements finished.
System Design	20	Requirements finished.
Code One	20	Initial Design finished, System Design finished.
Code Two	30	Initial Design finished, System Design finished.
Test Plan	25	Initial Design finished, System Design finished.
Test	10	Code One finished, Code Two finished, Test Plan
		finished.