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RN-7443

B. E. - IV (Sem. VII) (I.T.) Examination

May / June – 2010

Software Engineering

Time : Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. - 4 (Sem. 7) (IT)**

Name of the Subject :

☛ **Software Engineering**

☛ Subject Code No. : **7 4 4 3** ☛ Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

(2) Answer briefly and to the pont.
(3) Draw diagrams wherever required.
(4) Make suitable assumptions wherever necessary.

SECTION – I

1. (a) **Define the following terms** **10**
   - **(i)** Software Engineering Practice
   - **(ii)** Cohesion
   - **(iii)** UML
   - **(iv)** Legacy software
   - **(v)** Code Refactoring

   (b) **Answer in one or two sentences.** **10**
   - **(i)** Who are the stakeholders in a software development process?
   - **(ii)** What is outsourcing a software ?
   - **(iii)** Name two agile process models.
   - **(iv)** What is "pair programming" ?
   - **(v)** What is an "acceptance test" ?

2. (a) With the help of a neat diagram explain the phases of the Spiral Model. Explain the risk reduction mechanism of the Spiral Model. **10**

   OR

   (a) With the help of a neat diagram explain Rapid Application Development. For what type of projects is the RAD model suitable? What are the drawbacks of this model ? **10**

   (b) Give 2 examples of projects that could be developed using Incremental Model. Explain your answer. **5**

3. (a) What is CMMI ? Briefly explain the CMM Levels. 7

OR

(a) Discuss good *"Coding Principles"*. 7

(b) **Develop the following UML diagrams :** 8

(i) Use-Case Diagram for an online-bookstore
(ii) Sequence Diagram to search for books in the online bookstore

SECTION - II

4. (a) **Fill in the blanks** 10

(i) A desirable design goal for software is high _____ and low _____.

(ii) _____ and _____ are characteristics of software risk.

(iii) _____refers to the set of activities that ensure that software correctly implements a specific function.

(iv) The other name for Glass-Box testing is _____.

(v) XP stands for _____.

(vi) LOC stands for _____.

(vii) _____ focuses verification effort on the smallest unit of software design.

(viii) _____ occurs as a consequence of successful testing.

(ix) A _____ is a set of logically related tasks performed to achieve a defined business outcome.

(x) In the Cleanroom Approach, the _____ specifies the behavior of a system in response to events, while the _____ encapsulates the data and services.

(b) For the following piece of code (i)draw the flow-graph ; (ii) find the number of predicate nodes ; (iii) find the basis set of linearly independent paths ; (iv) calculate the cyclomatic complexity 10

```
int chkrange(){

int num, eflag;

scanf("%d",&num);

if(num<100){
  eflag=1;
}
else if(num>=100 && num<=200){
  eflag=2;
}
else eflag=3;

return(eflag);
}
```

5.	**Answer the following (ANY 3)**	**15**
(a)	Briefly explain how a "Formal Technical Review" is conducted.	
(b)	Discuss Cleanroom Strategy.	
(c)	What is Software Risk? List and Explain software risks.	
(d)	Compare Testing v/s. Debugging.	
(e)	Explain Boundary Value Analysis.	
6.	**Answer the following (ANY 3)**	**15**
(a)	Discuss basic principles of Project Scheduling.	
(b)	Explain Equivalence Partitioning.	
(c)	Briefly describe Forward engineering for object-oriented Architectures.	
(d)	Discuss Risk Management using RMMM plan.	
(e)	Discuss Six Sigma for software engineering.	