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**Question Paper Code : 50389**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2017

Fourth Semester

Computer Science and Engineering  
CS 6403 – SOFTWARE ENGINEERING

Common to : Information Technology  
(Regulations 2013)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. Write the IEEE definition of software engineering.
2. Why LOC is not a better metric to estimate a software ?
3. Draw a use case diagram for an online shopping which should provide provisions for registering, authenticating the customers and also for online payment through any payment gateway like paypal.
4. Define Quality Function Development (QFD).
5. Write a note on FURPS model.
6. Draw the context flow graph of a ATM automation system.
7. Mention the purpose of stub and Driver used for testing.
8. Define verification and validation testing.
9. List out the principles of project scheduling.
10. Write a note on Risk Information Sheet (RIS).



## PART – B

(5×13=65 Marks)

11. a) i) What is the impact of reusability in software development process? (4)  
 ii) Explain the component based software development model with a neat sketch. (9)  
 (OR)
- b) i) Write a note on the unique characters of a software. (3)  
 ii) What is the significance of the spiral model when compared with other models. (3)  
 iii) Explain the CMMI model to assess the organization level. (7)
12. a) i) What is feasibility study? How it helps in requirement engineering process? (3)  
 ii) How will you classify the requirement types for a project, give example. (3)  
 iii) List the stake holders and all types of requirements for an online train reservation system. (7)  
 (OR)
- b) Consider the process of ordering a pizza over the phone. Draw the use case diagram and also sketch the activity diagram representing each step of the process, from the moment you pick up the phone to the point where you start eating the pizza. Include activities that others need to perform. Add exception handling to the activity diagram you developed. Consider at least two exceptions (e.g. delivery person wrote down wrong address, deliver person brings wrong pizza). (13)
13. a) Discuss about the design concepts in a software development process. (13)  
 (OR)
- b) Discuss about User Interface Design of a Software with an example and neat sketch. (13)
14. a) Consider the following program segment.  
 /\* num is the number the function searches in a presorted integer array arr \*/  
 int bin\_search (int num)  
 {  
 int min, max; min = 0; max = 100;  
 while (min != max) {  
 if (arr[(min + max)/2] > num)  
 max = (min + max)/2;  
 else if(arr[(min + max)/2]



```

min = (min + max)/2;
else return ((min + max)/2);
}
return(- 1);
}

```

- i) Draw the control flow graph for this program segment. (2)  
 ii) Define cyclomatic complexity. (2)  
 iii) Determine the cyclomatic complexity for this program. (Show the intermediate steps in your computation. Writing only the final result is not sufficient) (9)  
 (OR)
- b) i) Explain how the various types of loops are tested. (9)  
 ii) Differentiate black box and white box testing. (4)
15. a) Explain in detail about the risk management in a software development life cycle. (13)  
 (OR)
- b) i) Discuss about COCOMO II model for software estimation. (8)  
 ii) Explain about the factors that cause difficulty in testing a software. (5)
- PART – C (1×15=15 Marks)
16. a) List out the various umbrella activities which support software development process and discuss about their necessity in maintaining the quality in both software process and product that is being developed for railway reservation system. (15)  
 (OR)
- b) Model a data flow diagram for a "Library Management System". State the functional requirements you are considering. (15)