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10IS51

## Fifth Semester B.E. Degree Examination, May 2017 Software Engineering

Time: 3 hrs.

Max. Marks: 100

**Note: Answer any FIVE full questions, selecting atleast TWO questions from each part.**

### PART – A

1. a. What are the key challenges facing software engineering? (10 Marks)  
 b. Define and distinguish between the system reliability and availability. (04 Marks)  
 c. Discuss the essential attributes of a good software. (06 Marks)
2. a. With a figure explain the system design process. (05 Marks)  
 b. What is process iteration? Explain Boehm's spiral model. (10 Marks)  
 c. What are the three principal types of critical system? Explain the differences between them. (05 Marks)
3. a. Explain the need for requirements elicitation and analysis. Explain the different process activities involved. (10 Marks)  
 b. Discuss the activity based classification of CASE tools. (05 Marks)  
 c. What are the static workflows and its description in Rational Unified Process? (05 Marks)
4. a. Briefly explain the purpose of each of the sections in a software project plan. (08 Marks)  
 b. With a Bank ATM, draw a Data flow diagram modeling the data processing involved when a customer withdrawn cash from the machine. (06 Marks)  
 c. Develop an object model, including a class hierarchy diagram and an aggregation diagram showing the principal components of a personal computer system and its system software. (06 Marks)

### PART – B

5. a. Explain why it is necessary to design the system architecture. What are the system factors affected by the system architecture? Explain. (10 Marks)  
 b. Draw and explain the sequence diagram and state diagram for a typical weather station. (10 Marks)
6. a. Explain the most important activities in a general object oriented design process. (06 Marks)  
 b. The principles underlying agile methods are sometimes different to realize. State reasons. (06 Marks)  
 c. What are the tools that are included in a RAD environment? (04 Marks)  
 d. Discuss the software maintenance evolution process. (04 Marks)
7. a. Distinguish between software inspection and testing. What are the advantages of inspection over testing? (05 Marks)  
 b. The cleanroom approach to software development in based on five key strategies. Explain. (05 Marks)  
 c. Discuss the following :  
 (i) Incremental Integration Testing (ii) Flow graph for a binary search routine. (10 Marks)
8. a. Explain the basic COCOMO model with formula for different types of projects. (10 Marks)  
 b. Write critical note on the following :  
 (i) The people capability maturity model (ii) Selecting staff. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.