USN ☐☐☐☐☐☐☐☐☐☐

Fifth Semester B.E. Degree Examination, June-July 2009
Software Engineering

Time: 3 hrs.

Max. Marks:100

Note: *Answer any FIVE full questions*
choosing at least two from each part.

Part A

1. a. What are the attributes of good software and what are the key challenges facing software engineering? (10 Marks)
   b. Explain how both the waterfall model of the software process and the prototyping model can be accommodated in the spiral process model. (05 Marks)
   c. Name the components of a design method. (05 Marks)

2. a. Describe four different types of non-functional requirement, which may be placed, on the system. Give examples of each of these types of requirements. (10 Marks)
   b. During the requirement validation process, what are the different types of checks to be carried out on the requirements in the requirements document. Also what are the requirements validation techniques, which can be used in conjunction or individually? (10 Marks)

3. a. Based on your experience with a bank ATM, draw a data flow diagram modeling the data processing involved when a customer withdraws cash from a machine. (10 Marks)
   b. Draw and explain the state machine model of a simple microwave oven. (10 Marks)

4. a. Table below sets out a number of activities, durations and dependencies. Draw an activity chart and a bar chart showing the project schedule. (16 Marks)

Task	Duration (days)	Dependencies
T_1	10	
T_2	15	T_1
T_3	10	T_1, T_2
T_4	20	
T_5	10	
T_6	15	T_3, T_4
T_7	20	T_3
T_8	35	T_7
T_9	15	T_6
T_{10}	5	T_5, T_9
T_{11}	10	T_9
T_{12}	20	T_{10}
T_{13}	35	T_3, T_4
T_{14}	10	T_8, T_9
T_{15}	20	T_{12}, T_{14}
T_{16}	10	T_{15}

Table Q4 (a)

   b. What is the critical distinction between a milestone and a deliverable? (04 Marks)

Part B

5. a. What are the advantages and disadvantages of a shared repository model? (10 Marks)
   b. Explain with figure the data-flow model of an invoice processing system. (10 Marks)

6 a. List the various steps that need to be followed for object oriented design process. (05 Marks)
   b. What are the advantages and disadvantages of object oriented systems? (05 Marks)
   c. What are advantages and drawbacks of inheritance? (05 Marks)
   d. Explain about concurrent objects. (05 Marks)

7 a. What are the characteristics of rapid software development? (05 Marks)
   b. What is software prototyping? Give the benefits of software prototyping. (05 Marks)
   c. What is the objective of evolutionary prototyping? Give its advantages and the problems that are encountered. (05 Marks)
   d. What is an Agile method? Discuss the various principles used in Agile method. (05 Marks)

8 a. What are the various types of software maintenance? (04 Marks)
   b. Differentiate between Black Box testing and White Box testing. (06 Marks)
   c. Name and explain the factors affecting the productivity of software. (05 Marks)
   d. Name the various estimation techniques in software systems. (05 Marks)

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