Fourth Semester MCA Degree Examination, December 2011
Software Engineering

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions.*

1   a. What are the most important dimensions of system dependability?   **(05 Marks)**
   b. Give reasons why dependability is important in a critical system.   **(05 Marks)**
   c. What is software? Explain the different attributes of a good software.   **(05 Marks)**
   d. What are the key challenges facing software engineering?   **(05 Marks)**

2   a. Explain why legacy systems may be critical to operations of a business.   **(08 Marks)**
   b. Discuss the emergent system properties and their complexity.   **(08 Marks)**
   c. List the fundamental activities, which are common to all software processes.   **(04 Marks)**

3   a. Describe the requirement elicitation and analysis process, with a neat diagram.   **(08 Marks)**
   b. Indicate the principal stages of UORD.   **(05 Marks)**
   c. What is non-functional requirement? Explain the different types of non-functional requirements.   **(07 Marks)**

4   a. "Risk management process is an iterative process". Justify this statement with a neat diagram.   **(06 Marks)**
   b. Illustrate the behavioral model, with an example.   **(06 Marks)**
   c. For a software project, different activities and their duration are listed below. Draw the activity network and find the critical path.   **(08 Marks)**

Task	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}
Duration (in days)	8	15	15	10	10	5	20	25	15	15	7	10
Dependencies	-	-	T_1	-	T_2 T_4	T_1 T_2	T_1	T_4	T_3 T_6	T_5 T_7	T_9	T_{11}

5   a. What is architectural design? Explain the repository model and the client server model.   **(10 Marks)**
   b. Explain the guidelines to be observed while designing the user interface.   **(05 Marks)**
   c. Draw and describe the sequence diagram for a typical weather station.   **(05 Marks)**

6   a. Give a brief description of the five principals of agile methods.   **(05 Marks)**
   b. Discuss the advantages of pair programming.   **(05 Marks)**
   c. Briefly describe the 3 types of software maintenance. Why is it sometime difficult to distinguish among them?   **(10 Marks)**

7   a. Bring out the difference between white box and black box testing.   **(04 Marks)**
   b. Describe the characteristics of clean room software development.   **(06 Marks)**
   c. Mention the 5 levels in the P-CMM model. Explain each one of them.   **(10 Marks)**

8   a. Explain the two distinct goals of software testing.   **(05 Marks)**
   b. Illustrate with an example how cocomo model is used to estimate person months.   **(10 Marks)**
   c. What is the role of flow graph in software testing? Explain with an example.   **(05 Marks)**

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