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## Fourth Semester MCA Degree Examination, June/July 2013

### Software Engineering

Time: 3 hrs.

Max. Marks: 100

**Note: Answer any FIVE full questions.**

- 1
  - a. What is software engineering? Briefly explain the various key challenges being faced in software engineering. (06 Marks)
  - b. Explain the various professional and ethical responsibilities a software engineer should have. (06 Marks)
  - c. With a neat diagram, explain the different components of a legacy system and also relationship among them. (08 Marks)
- 2
  - a. Explain the terms “user requirements” and “system requirements”. List the different readers of user requirements and system requirements. (06 Marks)
  - b. With a neat diagram, explain the different types of activities that are performed in the requirement engineering process. (08 Marks)
  - c. With respect to requirements discovery, explain the viewpoint-oriented approach for requirement elicitation and analysis. (06 Marks)
- 3
  - a. What is meant by system model? With a diagram, explain the context of a ATM model. (06 Marks)
  - b. Explain the various components of a CASE tools that can support a structured method to build a system. (08 Marks)
  - c. As a manager responsibility, explain the different types of activities performed in a project management. (06 Marks)
- 4
  - a. What are the fundamental questions to be answered by architects during architectural design process? Also list the different types of models included to show the different perspectives of the system. (06 Marks)
  - b. With a suitable example, explain the client-server model that can be used for system organization. List the advantages and disadvantages of this model. (08 Marks)
  - c. What is meant by object-oriented design? With a suitable example, explain an object class hierarchy relationship among different classes in a system. (06 Marks)
- 5
  - a. Explain the various principles of agile methods. (06 Marks)
  - b. What is meant by rapid application development? With a neat diagram, explain the tools that are included in a rapid application development environment. (08 Marks)
  - c. Explain the laws of Lehman’s with respect to program evolution dynamics. (06 Marks)
- 6
  - a. What is meant by verification and validation? Explain the program inspection process used to detect program defects. (07 Marks)
  - b. Explain five key strategies of clean room software development. (05 Marks)
  - c. With a neat diagram, explain the black-box testing. And also list the guidelines used to conduct black-box testing. (08 Marks)
- 7
  - a. Briefly explain the various factors to be considered during staff selection. (06 Marks)
  - b. With a neat diagram, explain the people capability maturity model. (08 Marks)
  - c. Explain COCOMO model that can be used to estimate calendar time required to complete a project. (06 Marks)
- 8
 

Write short notes on:

a. Water fall model	b. System evolution
c. Risk management	d. The software requirement documentation. <span style="float: right;">(20 Marks)</span>