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Fifth Semester B.E. Degree Examination, May/June 2010
Software Engineering

Time: 3 hrs.

Max. Marks:100

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

PART – A

1. a. What are the key challenges facing software engineering? Explain. (04 Marks)
 b. What are emergent system properties? Give examples for each. (04 Marks)
 c. With a figure, explain the requirements of an engineering process. (12 Marks)
2. a. With a figure, explain the phases in the RUP. (05 Marks)
 b. Explain the functional and non-functional requirements for any system. (10 Marks)
 c. Give the number of possible metrics to specify non-functional system properties. (05 Marks)
3. a. What is an architectural design? Explain the architectural design decisions. (06 Marks)
 b. Why requirements need to be validated? Explain the check made in requirement validation. (06 Marks)
 c. Explain the requirement elicitation and analysis phase, with spiral diagram. Give reasons, why is it difficult phase in requirements engineering process. (08 Marks)
4. a. Explain the IEEE standard format for the requirement document in detail. (06 Marks)
 b. Draw and explain the use-case diagram and sequence diagram for a library system or ATM withdraw system. (06 Marks)
 c. Refer table below for task durations and interdependencies:

| Task | T ₁ | T ₂ | T ₃ | T ₄ | T ₅ | T ₆ | T ₇ | T ₈ | T ₉ | T ₁₀ |
|-------------------|----------------|----------------|----------------|-------------------------------------|--|--|-------------------------------------|--|--|-------------------------------------|
| Duration in days | 9 | 16 | 11 | 15 | 7 | 20 | 26 | 15 | 15 | 16 |
| Interdependencies | - | - | - | T ₁ (M ₁) | T ₁ T ₂ (M ₂) | T ₂ T ₃ (M ₃) | T ₃ (M ₅) | T ₄ T ₅ (M ₄) | T ₅ T ₆ (M ₆) | T ₈ (M ₇) |

- i) Draw activity network ii) Find and highlight critical path. (08 Marks)

PART – B

5. a. Name and explain the three organizational styles that are very widely used, with necessary figure. (10 Marks)
 b. Explain with a figure, the central control and event based control system. (10 Marks)
6. a. What are agile methods? Discuss the principles of agile methods. (07 Marks)
 b. What are the practices followed in extreme programming? (06 Marks)
 c. With a figure, explain the process of prototype development. What are the benefits of using prototyping? (07 Marks)
7. a. What is verification and validation? Explain why validation is a particularly difficult process. (05 Marks)
 b. Explain the software development process model, using V-model with figure. (10 Marks)
 c. The clean room approach to software development is based on five key strategies. Explain them. (05 Marks)
8. a. Name and explain the factors governing staff selection. (10 Marks)
 b. Explain with a figure, the people capability maturity model. (10 Marks)

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