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06IS51

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_1T_2 (M_2)	T_2T_3 (M_3)	T_3 (M_5)	T_4T_5 (M_4)	T_5T_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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