Fifth Semester B.E. Degree Examination, June/July 2014

Software Engineering

Time: 3 hrs.   Max. Marks:100

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

PART – A

1 a. Answer the following frequently asked questions about software engineering:
   i) Difference between software engineering and system engineering.
   ii) What is a software process model?
   iii) What are key challenges facing software engineering?   (06 Marks)
   b. What are emergent system properties? Give examples. Explain the types of emergent properties.   (08 Marks)
   c. Define legacy systems. Explain the layered model of a legacy system.   (06 Marks)

2 a. What are the types of critical systems? Define. Write a simple safety critical system and explain.   (09 Marks)
   b. Explain the evolutionary development, and its problems.   (06 Marks)
   c. Write Boehm's spiral model of the software process and explain.   (05 Marks)

3 a. List out the notations for requirement specification with description.   (06 Marks)
   b. Write the roles of the users of a requirement document.   (06 Marks)
   c. What is Ethnography? How ethnography is effective in discovering the types of requirements?   (08 Marks)

4 a. Draw the state machine model of a microwave oven.   (06 Marks)
   b. What is object aggregation? Write an example showing aggregation, with notation.(04 Marks)
   c. Following table shows number of activities, durations and dependencies and milestones. Draw an activity chart and a bar chart showing the critical path for the project schedule:

Tasks	Duration (days)	Dependencies
T_1	5	-
T_2	15	T_1 (M_1)
T_3	10	T_1 (M_1)
T_4	3	T_2 (M_2)
T_5	10	T_2, T_3 (M_2)
T_6	8	T_3 (M_2)
T_7	10	T_4, T_5, T_6 (M_3)
T_8	9	T_7
T_9	10	T_7
T_{10}	9	T_7
T_{11}	20	T_8, T_9, T_{10} (M_4)
T_{12}	10	T_{10} (M_4)
T_{13}	5	T_{11} (M_5)
T_{14}	10	T_{13}

                                                                               (10 Marks)

PART – B

5 a. According to Bas et al, what are the advantages of designing and documenting software architecture? **(05 Marks)**

b. Explain event driven systems. **(07 Marks)**

c. What is a sequence model? Write the sequence model of operations in collecting the data from a weather station and explain. **(08 Marks)**

6 a. Explain the difficulties with iterative development and incremental delivery. **(06 Marks)**

b. Briefly discuss the extreme programming release cycle with a neat diagram. **(06 Marks)**

c. How software maintenance is carries out? Explain briefly. **(08 Marks)**

7 a. Explain V-model with a neat diagram for planning verification and validation process. **(07 Marks)**

b. Explain the characteristics of clean room software development. **(06 Marks)**

c. Explain any one of the approaches to test case design. **(07 Marks)**

8 a. Why people capability maturity model is used? Explain P-CMM model. **(08 Marks)**

b. List the factors that influence the effectiveness of communication. **(04 Marks)**

c. Write a note on project duration and staffing. **(06 Marks)**

d. Name the types of metrics used to estimate productivity. **(02 Marks)**

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