Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 60297

M.E. DEGREE EXAMINATION, MAY/JUNE 2017.

Elective

Computer Science and Engineering

CP 7014 — SOFTWARE ARCHITECTURES

(Common to M.E. Computer Science and Engineering
(With Specialization in Networks))

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State two functional requirements for designing fund transfer through Mobile banking.

2. What is binding time decisions? Give two examples.

3. List the good practices in documentation and state with an example its use.

4. Differentiate between static and dynamic views.

5. What are the essential components in layered architectural style?

6. What are the functions carried out in a repository components of a shared-data system?

7. List the various approaches to architectural design. How does it impact with the achievement of quality attributes?

8. How is fault detection related to the quality attribute – availability? State the availability tactics.

9. What are the characteristics of SOA?

10. How important is cloud computing in software architecture? State the need for cloud computing.

PART B — (5 × 13 = 65 marks)

11. (a) Elaborate on the architectural structures and influence on software architecture on organization. (13)

Or

(b) Elaborate on the six part scenarios which are helpful in the decision making process integrating with the quality attributes. (13)

12. (a) (i) Sketch and explain the elements of ACME system architecture. (8)

(ii) List the merits and demerits of using visual language. (5)

Or

(b) Explain the various components of UML and explain the different views and perspectives. (13)

13. (a) Consider an application related to banking solutions. The bank should be able to manage different kinds of loans like housing loan, education loan, agriculture loan, etc. Design with suitable architectural style and justify with reasons for selecting the style type. (13)

Or

(b) Explain in detail the client server style and peer-to peer style with an example. (13)

14. (a) (i) What is system decomposition? Explain. (6)

(ii) Discuss the security issues to be handled in architectural design. What are the essential facts to be taken into consideration before design? (7)

Or

(b) Write short notes on Architectural conformance. (13)

15. (a) Describe in detail ATAM and its variations. (13)

Or

(b) (i) State the need for evaluation and how significant is the architectural evaluation. Give illustrations. (9)

(ii) Briefly discuss the need for web services and its use. (4)

PART C — (1 × 15 = 15 marks)

16. (a) Consider the fact of automating the election process. The polling is to be done using electronic polling machine. The constraints to be considered are the same person will not be able to cast the vote more than once. Identity should be checked before voting. The count with the respective category of voting should be incremented correctly for final decision. Design the components in the architecture structure and discuss the quality attributes to be considered with functional and non functional requirements.

Or

(b) A security light has a switch and a motion sensor attached. It can be either armed or unarmed. If the switch is in the off position the light is off and the motion sensor is unarmed. When the switch is made on the light stays off, but the motion sensor is armed. If the motion sensor is armed and it detects movement, the light comes on. If no movement is detected for 5 seconds, the light goes off. Draw a UML state-chart to show a design for the security light system with explanation.

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