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Question Paper Code : 83107

M.E. DEGREE EXAMINATION, JANUARY 2014.

First Semester

Computer Science and Engineering

CP 7101 — DESIGN AND MANAGEMENT OF COMPUTER NETWORKS

(Common to : M.E. Computer Science and Engineering (With specialization in Networks)/M.E. Biometrics and Cyber Security)

(Regulation 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Draw the block diagram representing how information flows between analysis, architecture and design.
2. List the various generations of networking evolved based on complexity.
3. Draw a block diagram representing different characterization of User behaviour.
4. Differentiate between the general and environment-specific thresholds defined in developing RMA requirements.
5. Give any of the five flow characteristics defined for flow analysis.
6. List any three common approaches used for identifying flows from an application perspective.
7. Give a sample chart for listing dependencies between performance mechanisms.
8. Give the process model for component architecture approach.
9. What are the primary differences between first-order and second-order design products?
10. List the key product that emerges as an outcome of a network design.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Give an example template for device descriptions and discuss it based on the categories of devices. (8)
- (ii) Classify and discuss in detail about the four categories of network management tasks. (8)

Or

- (b) (i) Discuss in detail about the roles of requirement specification and map in the establishment of network architecture. (8)
- (ii) Enumerate on the various application groups identified based on the network requirement analysis process. (8)
12. (a) (i) Describe in detail about any two ways to make an uptime requirements of 99.999% more precise. (8)
- (ii) Develop a questionnaire to gather requirements from users, management and staffs, if your customer is a hospital management that wants to upgrade its LAN. (8)

Or

- (b) (i) Consider a network project where you can't talk to users or staffs. What resources will you use to gather user, application, device and network requirements? (8)
- (ii) Elaborate on the development of delay and capacity requirements. (8)
13. (a) (i) Develop a flow model for real time/near real time flow. How would you characterize the flow for his model? (8)
- (ii) What is flow prioritization? Elaborate on any one of the flow specification algorithm. (8)

Or

- (b) (i) Consider a transaction-processing application, authorizing credit card transactions between a company's retail store and its head quarters. Give the most likely directions for the flow described by each flow model. (8)
- (ii) Consider a scenario, where users on the Internet always access a common web server. Which flow model could you apply? Explain. (8)

14. (a) (i) How does the addition of out-of-band management between the corporate NOC and remote sites potentially impact the security of the network? (8)
- (ii) List four types of problems that the performance architecture addresses. Give examples of each type of problems. (8)

Or

- (b) (i) What are the layers of network management? Give an example of management at each layer and explain how it is managed. (8)
- (ii) Outline the development of DMZs that could be applied at each site where connections are made to other autonomous systems. What type of device would be used at these sites? (8)
15. (a) (i) What are network blueprints, network diagrams and component plan? Why would a network design have sets of each of these? (8)
- (ii) Enumerate in detail about the various switching and routing protocols available for routing data in the network. (8)

Or

- (b) (i) What are the steps to be followed for ad-hoc design decision? How do such decisions reduce the quality of the resulting design? (8)
- (ii) Compare and contrast logical network design with physical network design. (8)
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