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Question Paper Code : 71170

M.E. DEGREE EXAMINATION, JUNE/JULY 2013.

First Semester

Communication Systems

CP 9212/CP 912/AP 957/10244 CC 203 — HIGH PERFORMANCE COMPUTER NETWORKS

(Common to M.E. Applied Electronics, M.E. Computer and Communication, M.E. Computer Networking and Engineering, M.E. Networking and Internet Engineering and M.E. Communication and Networking)

(Regulation 2009/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Identify the type of multiplexing used to transmit analog and digital signals.
2. List the design criteria used by application developers to make the choice between different transport related protocols.
3. How does receiver determine whether packet is first in a talkspurt?
4. Distinguish between weighted fair and round robin queuing disciplines.
5. What security vulnerabilities are addressed by VPN?
6. In what sense VPN is virtual?
7. List down the reasons for the failure of Poisson traffic modeling.
8. State the Little's theorem of queuing.
9. List the key requirements for a secured communication system.
10. What are the limitations faced by a firewall in network management?

PART B — (5 × 16 = 80 marks)

11. (a) Explain how the ATM bearer service can be implemented using SONET networks. (16)

Or

- (b) Compare and contrast the TCP/IP and the OSI Reference model with suitable diagrams. (16)

12. (a) Discuss the procedure for recovery from packet loss in real-time multimedia streaming applications. (16)

Or

- (b) How does Session Initiation Protocol facilitates setting up a call to a known IP address? (16)

13. (a) Consider an overlay network that consists of five connected nodes. Compare two methods for a peer-to-peer connection on top of the Internet, using

(i) A ring topology (8)

(ii) A star topology. (8)

Or

- (b) Traffic engineering in MPLS networks can be done in the following two locations. Compare the advantages of each approach.

(i) Egress nodes estimate routing to and from all ingress nodes. (8)

(ii) A preassigned router estimates routing and propagates to all LSRs. (8)

14. (a) Identify the best service model for a “channel” that is transporting packets from sender to receiver? With suitable reasons and diagram, summarize the traffic modeling adapted. (16)

Or

- (b) Describe a traffic model for variable bit rate continuous media transmission with deterministic service and is also not Poisson distributed. (16)

15. (a) (i) Explain the role of ASN.1 in the protocol reference model, discussing it on either the five- or seven-layer protocol model. (8)
- (ii) Find the impact of constructing a grand set of unique global ASN.1 names for MIB variables. (8)

Or

- (b) Elaborate how can two communicating parties agree on a secret key, given that they can only communicate with each other over the network? How does Kerberos enable such a communication via key distribution center? (16)
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