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Question Paper Code : 20475

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2022.

Fifth Semester

Electronics and Communication Engineering

EC8551 — COMMUNICATION NETWORKS

(Common to Electronics and Telecommunication Engineering)

(Regulations 2017)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Draw the Encoding pattern for token field used in IEEE 802.5.

2.   Map the interconnecting devices to the OSI architecture.

3.   A block of addresses is granted to a small organization. One of the address is 205.16.37.39/28. What is the first address in the black.

4.   How is CSMA/CD effective in network communication?

5.   What is meant by link local address?

6.   Mention some of the inter-domain routing protocols

7.   Differentiate UDP from TCP

8.   What are the characteristics that a flow has to attain to meet QoS requirements?

9.   Define non-repudiation.

10. Name a protocol that use a KDC for user authentication.

PART B — (5 × 13 = 65 marks)

11. (a) Discuss about the functionalities of various layers in detail in OSI mode.

Or

(b) List important functions of data link layer? Explain how flow and error control mechanisms are implemented.

12. (a) Classify various random-access protocols in detail and explain the responsibility of MAC Sub layer.

Or

(b) Illustrate IPv4 protocol with a neat sketch of IP packet format and its addressing.

13. (a) What is meant by ARP and RARP? Explain how logical address and physical address are resolved in a network with an example.

Or

(b) Explain how routing information protocol works in routers with a help of a suitable scenario.

14. (a) Interpret process to process delivery and explain the TCP protocol with a neat sketch of TCP segment format.

Or

(b) Elucidate how TCP uses congestion control to avoid congestion or alleviate congestion in the network with a neat schematic diagram.

15. (a) State and brief about SNMP, the PDU format of SNMP and discuss how network is managed.

Or

(b) Describe the security services related to message/entity in detail

PART C — (1 × 15 = 15 marks)

16. (a) Show the autonomous system with the following specifications:

(i) There are eight networks (N1 to N8).

(ii) There are eight routers (R1 to R8).

(iii) N1, N2, N3, N4, N5, and N6 are Ethernet LANs.

(iv) N7 and N8 are point-to-point WANs.

(v) R1 connects N1 and N2.

(vi) R2 connects N1 and N7.

(vii) R3 connects N2 and N8.

(viii) R4 connects N7 and N6.

(ix) R5 connects N6 and N3.

(x) R6 connects N6 and N4.

(xi) R7 connects N6 and N5.

(xii) R8 connects N8 and N5.

Draw the graphical representation of the autonomous system described above as seen by open shortest pith first.

Or

(b) An ISP is granted a block of addresses starting with 150.80.0.0/16. The ISP wants to distribute these blocks to 2600 customers as follows.

(i). The first group has 200 medium-size businesses; each needs 128 addresses.

(ii). The second group has 400 small businesses; each needs 16 addresses.

(iii). The third group has 2000 households; each needs 4 addresses.

(iv). Design the subblocks and give the slash notation for each subblock. Find out how many addresses are still available after these allocations.

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