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10EC/TE71

Seventh Semester B.E. Degree Examination, June/July 2019
Computer Communication Networks

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. Compare and contrast OSI, and TCP/IP reference model. **(06 Marks)**

b. With diagrams explain different types of addressing in TCP/IP. **(08 Marks)**

c. Match the following to one or more layers in OSI model.

i) Synchronization of bits
ii) Access control
iii) Route determination
iv) Segmentation and reassembly
v) Dialog control
vi) Data compression. **(06 Marks)**

2 a. Explain in detail Go-back –N ARQ. **(08 Marks)**

b. With neat diagram, explain HDLC frame format. **(06 Marks)**

c. Assume that, in a stop and wait ARQ system, the bandwidth of line is 1Mbps and 1 bit takes 20msec to make a round trip (i) what is bandwidth delay product (ii) if the system data frames are 1000 bits in length, what is utilization of percentage of link (iii) what is utilization percentage of link if we have a protocol that can send upto 15 frames before stop and worrying about acknowledgments. **(03 Marks)**

d. Explain briefly bit and character stuffing. **(03 Marks)**

3 a. A slotted ALOHA network transmits 200bits frames using a shared channel with a 200 kbps band width. Find the throughput if the system (all stations together) produces.

i) 1000 frames/sec
ii) 500 frames/sec
iii) 250 frames/sec **(04 Marks)**

b. Briefly explain using flow diagram CSMA/CA. **(06 Marks)**

c. Briefly explain using flow diagram three persistence methods. **(06 Marks)**

d. Briefly explain how data communication is carried out using CDMA. **(04 Marks)**

4 a. What are the advantages of bridge Ethernet? List the goals of fast Ethernet. Enumerate fast Ethernet implementations. **(08 Marks)**

b. With regards to IEEE 802.11 Briefly explain :

i) DCF and PCF
ii) Frame format
iii) Addressing mechanism. **(12 Marks)**

PART – B

5 a. List different connecting devices on the basis of layers they operate. **(04 Marks)**

b. Discuss looping problem in transparent bridges. How spanning trees helps to avoid looping problems? **(08 Marks)**

c. What are VLANS? What are the basis for membership in VLAN? Enumerate the advantages of having VLANS. **(08 Marks)**

6 a. Compare and contrast IPV4 and IPV6 headers. **(06 Marks)**

b. Discuss briefly transition from IPV4 to IPV6. **(06 Marks)**

c. An ISP is granted block address strating from 190.100.0.0/16 (65,536 address). The ISP needs to distribute these addresses to 3 group of customers as follows

i) The first group has 64 customers, each need 256 addresses

ii) The second group has 128 customers each needs 64 addresses

iii) The third group has 128 customers, each needs 64 addresses.

Design the sub block and find out how many addresses are still available after these allocations. **(08 Marks)**

7 a. Mention different fields in a routing table. What are the significance of flag fields. **(04 Marks)**

b. What are autonomous systems? Categorize autonomous system. Explain briefly on BGP sessions. **(06 Marks)**

c. Compare multicasting and multiple unicasting? Discuss multicast distance vector routing. **(10 Marks)**

8 a Compare and contrast TCP segment and UDP. **(08 Marks)**

b Write short notes on :

i) Domain Name System (DNS)

ii) Three way hand shaking in TCP. **(12 Marks)**

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