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10EC/TE71

Seventh Semester B.E. Degree Examination, June/July 2017

Computer Communication Networks

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. Explain the ISO-OSI reference model with a neat diagram. Discuss the function of each layer. **(10 Marks)**

b. Explain the signaling system seven (SS7) protocol with a neat diagram. **(05 Marks)**

c. Match the following functions to the appropriate layers in the OSI model:
i) Interface to the transmission media.
ii) Dividing the transmitted bit stream into frames
iii) Route determination
iv) Reliable process to process message delivery
v) Format and code conversion services **(05 Marks)**

2 a. Explain the bit stuffing and unstuffing by taking a suitable example. **(05 Marks)**

b. Explain the configuration modes of HDLC protocol with neat diagrams. **(05 Marks)**

c. Explain the stop and wait protocol with neat diagram. **(10 Marks)**

3 a. Explain the procedure for pure aloha protocol with a neat diagram. **(06 Marks)**

b. A slotted aloha network transmits 200 bit frames using a shared channel of 200 kbps bandwidth. Find the throughput, if the system produces,
i) 1000 frames per second
ii) 500 frames per second
iii) 250 frames per second **(06 Marks)**

c. Explain the working of CSMA/CD with a neat diagram. **(08 Marks)**

4 a. Compare the data rates for standard Ethernet, fast Ethernet, gigabit Ethernet and ten gigabit Ethernet. **(04 Marks)**

b. Identify whether the following Mac addresses are unicast, multicast or broad cast.
i) 4A : 30 : 10 : 21 : 10 : 1A
ii) 47 : 20 : 1B : 2E : 08 : EE
iii) FF : FF : FF : FF : FF : FF **(06 Marks)**

c. What are the common standard Ethernet implementation? Explain with neat diagrams. **(10 Marks)**

PART – B

5 a. Explain each of the following in brief:
i) Passive hub
ii) Repeater
iii) Bridge
iv) Router
v) Gateway **(10 Marks)**

b. Explain each of the following in brief :
i) Bus backbone networks
ii) Star backbone networks **(06 Marks)**

c. What is vlan? Explain. **(04 Marks)**

6 a. Explain the IPV4 datagram format with a neat diagram. **(10 Marks)**
b. Explain the classful addressing schemes. **(06 Marks)**
c. A block of addresses is granted to an organization. If the IP address of one of the host is 205.16.37.39/28, find the first address and last address in the block. **(04 Marks)**

7 a. What is the difference between a direct delivery and indirect delivery? **(04 Marks)**
b. What is multicasting? Explain with a neat diagram and mention the applications of multicasting. **(08 Marks)**
c. Classify the four types of links defined by OSPF and explain. **(08 Marks)**

8 a. Explain the TCP segment format with a neat diagram. **(10 Marks)**
b. What are the three domains of the domain name space? Explain. **(06 Marks)**
c. How does recursive resolution differ from the iterative resolution? **(04 Marks)**

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