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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)
