EE836

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NEW SCHEME

Eighth Semester B.E. Degree Examination, May 2007
Electrical and Electronics Engineering
Computer Communication and Networking

Time: 3 hrs.] [Max. Marks:100

Note : ***Answer any FIVE full questions.***

1 a. Explain in detail communication between layers at interface in computer networks. **(10 Marks)**

b. Find the propogation delay for a signal traversing the following networks at a speed of 2.3×10^8/sec in cable i) A circuit borad : 10 cm ii) A campus : 1 km. iii) up and down to a geo-stationary satellite : 2 × 36000 kms. **(10 Marks)**

2 a. Explain with a neat diagram the operation of a TI carrier system with respect to TDM process. Also explain concept of multiplexing of PCM channels. **(10 Marks)**

b. What is multiplexing? List the different types of multiplexing techniques. **(05 Marks)**

c. Why has PCM sampling time been set at 125 μ sec? **(05 Marks)**

3 a. Explain the concept of basic rate and primary rate as applied to ISDN interface. **(05 Marks)**

b. Compare the characteristics of the following :
i) Circuit switching. iii) Datagram Packet switching.
ii) Message switching iv) Virtual Circuit Packet switching. **(15 Marks)**

4 a. Find the CRC for a frame (message) 1010001101 and $G(x) = x^5 + x^4 + x^2 + 1$. **(10 Marks)**

b. A 100 km runs at the TI data rate. The propogation speed in the cable is 2,00,000 kms/sec. How many bits fit in the cable? **(10 Marks)**

5 a. Explain Frame format for 802.3 MAC sub layer protocol in detail. **(10 Marks)**

b. Explain briefly concept of working of a Token ring (IEEE standard 802.5). **(05 Marks)**

c. In a CSMA/CD network at 1 Gbps over 1 km with no repeaters. Find the minimum frame size. Assume the signal speed in the cable as 200 m/μ sec. **(05 Marks)**

6 Explain in detail concept of sliding window protocols as analyzed in the data link layer. **(20 Marks)**

7 a. Explain any 4 interconnecting devices used in the Internet and mention the layers at which these devices operate. **(10 Marks)**

b. Explain the following as applied to network layer i) Leaky bucket algorithm ii) Token bucket algorithm. **(10 Marks)**

8 a. Define 8 quality of service parameters as applied to transport layer in a computer network. **(08 Marks)**

b. Explain in brief i) Connection oriented service ii) Connectionless service. **(07 Marks)**

c. A TCP connection has 65535 bytes windows sent over 1 Gbps channel. The channel has a round trip delay of 20 m – secs. Find the i) Maximum achievable throughput. ii) Line efficiency. **(05 Marks)**

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Eighth Semester B.E. Degree Examination, Dec. 07 / Jan. 08
Computer Communication Networking

Time: 3 hrs.] [Max. Marks:100

Note : ***Answer any FIVE full questions.***

1 a. What is computer network? Discuss different applications of computer networks. **(06 Marks)**

b. Explain the layered architecture of OSI reference model. **(08 Marks)**

c. Clearly bring out the differences between LAN, MAN and WAN with examples. **(06 Marks)**

2 a. Describe the ISDN system architecture. **(06 Marks)**

b. Compare : i) Wired and wireless communication.
ii) Space division and time division circuit switching. **(08 Marks)**

c. Explain in detail TDM as applied to computer networks. **(06 Marks)**

3 a. Explain Pure Aloha and Slotted Aloha. **(10 Marks)**

b. Give the 802.3 frame format. **(04 Marks)**

c. Explain Ethernet protocol. **(06 Marks)**

4 a. Explain FDDI token ring network. **(06 Marks)**

b. Discuss briefly, the functionalities of data link layer. **(06 Marks)**

c. If the bit stream 10011101 is transmitted using CRC method. The generator polynomial is x^3+1. Check whether the code is accepted or rejected, if rejected indicate correction. **(08 Marks)**

5 a. What are sliding window protocols? Explain various cases in go-back-n protocol. **(10 Marks)**

b. Show that the window size for selective repeat ARQ protocol should be less than 2^{m-1}. **(06 Marks)**

c. A channel has a bit rate of 1 Mbps and 1 bit takes 20 ms to make a round trip. For what range of frame size does stop and wait protocol give an efficiency of at least 50%? **(04 Marks)**

6 a. What are the general principles of congestion control algorithm? Explain the leaky bucket algorithm. **(10 Marks)**

b. Given the following graph representing the network.Apply shortest path routing algorithm and find the routing table at each node. **(10 Marks)**

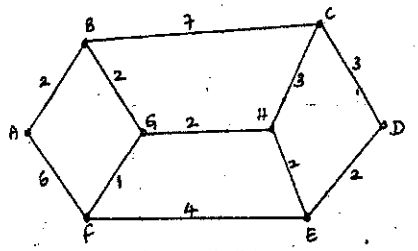

Fig. Q6 (b)

7 a. Explain the various fields in TCP header and their uses in addressing, error control and flow control. **(08 Marks)**

b. Discuss the functions of UDP and format of UDP header. **(06 Marks)**

c. Differentiate between IPV_4 and IPV_6. **(06 Marks)**

8 Write short notes on:

a. ATM networks. b. IP protocols.

c. Satellite communications. d. Blue tooth technology. **(20 Marks)**

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EE836

Eighth Semester B.E. Degree Examination, May / June 08
Computer Communication Networking

Time: 3 hrs. Max. Marks:100

Note : ***Answer any FIVE full questions.***

1 a. With neat diagram, explain TCP /IP model. **(10 Marks)**
b. What are the applications of computer networks? **(05 Marks)**
c. Explain the difference between –
i) Connection oriented services and connectionless oriented services.
ii) Services and protocol. **(05 Marks)**

2 a. Differentiate between circuit switching and packet switching. **(05 Marks)**
b. Ten signals of 4000 Hz each are multiplexed on to a single channel using FDM. Find out the minimum bandwidth required for the multiplexed channel. Assume guard bands are 400 Hz wide. **(05 Marks)**
c. What are the two types of TDM implementations and how do they differ form each other? **(10 Marks)**

3 a. What are reference points in ISDN? Explain with a suitable ISDN setup. **(10 Marks)**
b. What is a digital pipe? Discuss the ISDN channels standardized. **(10 Marks)**

4 a. Explain in the token ring MAC sub layer protocol frame format. **(08 Marks)**
b. Explain and differentiate between Pure ALOHA and Slotted ALOHA. **(12 Marks)**

5 a. What is ARQ? Discuss in detail :
i) Pipelining
ii) Go – back – N protocol. **(10 Marks)**
b. Discuss in detail the design issues related to data link layer. **(10 Marks)**

6 a. Mention the techniques for achieving good quality of service (QOS). Explain how leaky bucket algorithm is used to achieve QOS. **(10 Marks)**
b. Briefly explain the IP V4 header format.
c. A network on the internet has a subnet mask of 255.255.240.0. What is maximum number of hosts that it can handle?
d. Convert IP address whose hexa decimal representation is C22 F 1582 to dotted decimal notation. **(10 Marks)**

7 a. What is Socket? List and explain the socket primitives of TCP. **(10 Marks)**
b. Explain three way hand shake based connection establishment in TCP. **(10 Marks)**

8 Write short notes on any four :
a. TCP header format
b. Explain the IP address scheme
c. Congestion control
d. Compare virtual – circuit and datagram types of subnets.
e. B – ISDN reference model
f. Computer network standardization. **(20 Marks)**

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