Code No: N0421/R07
 Set No. 1

 IV B.Tech I Semester Supplementary Examinations, Feb/Mar 2011 COMPUTER NETWORKS
 2011

 (Common to Electronics & Communication Engineering, Electronics & Instrumentation Engineering and Bio-Medical Engineering)
 2011

 Time: 3 hours
 Max Marks: 80

 Answer any FIVE Questions All Questions carry equal marks

1. (a) What does a negotiation mean when discussing network protocols. Give an example for it.

- (b) Explain various types of connection oriented and connection less services with the help of appropriate examples. [8+8]
- 2. (a) A noiseless 4KHz channel is sampled every 1msec. What is the maximum data rate?
 - (b) Differentiate between circuit switching and packet switching techniques used within the computer network? [6+10]
- 3. (a) Explain one -bit sliding window protocol. Give the advantages and disadvantages of one-bit sliding window protocol?
 - (b) Discuss the services provided by the data link layer to the network layer?

4. (a) Discuss about fast Ethernet cabling?

(b) Explain various token bus control frames? [8+8]

[8+8]

- 5. What are the services provided by Network layer to Transport layer. Explain. [16]
- 6. (a) How fragmentation is achieved? Explain the format of fragment.
 - (b) What is Firewall? How Firewall provides security? [8+8]
- 7. (a) What is Pay load? What is the payload size of the maximum length message that fits in a single AAL 3/4 cell?
 - (b) When a 1024 bytes message is sent with AAL 3/4, what is the efficiency obtained? In other words, what fraction of the bits transmitted are useful data bits? Repeat the problem for AAL 5. [6+10]
- 8. (a) What are the facilities available on the web for locating information?
 - (b) How web can be used for e-commerce? [8+8]

1 of 1

Set No. 2

IV B.Tech I Semester Supplementary Examinations, Feb/Mar 2011 COMPUTER NETWORKS (Common to Electronics & Communication Engineering, Electronics & Instrumentation Engineering and Bio-Medical Engineering) Time: 3 hours Answer any FIVE Questions All Questions carry equal marks

- *****
- 1. (a) Give a detailed description of the Novell Netware IPX packet?
 - (b) Compare connection less and connection oriented services with suitable examples? [8+8]
- 2. (a) Discuss about the various transmission media available at the physical layer?
 - (b) Discuss about the electromagnetic spectrum and its uses for communication? [10+6]
- 3. (a) Discuss the error control technique which is commonly used in data network. What value of N is used in go-back-N ARQ technique used in ARPANET and why?
 - (b) Imagine that you are writing the data link software for a line used to send data to you, but not from you. The other end uses HDLC, with a 3-bit sequence number and a window size of seven frames. You would like to buffer as many out of sequence frames as possible to enhance efficiency, but you are not allowed to modify the software on the sending side. Is it possible to have a receiver window greater than one, and still guarantee that the protocol will never fail? If so, what is the largest window that can be safely used? [8+8]
- 4. (a) Explain any two protocols that resolve the contention for the channel with out any collisions at all?
 - (b) A very heavily loaded 1?km?long, 10-Mbps token ring has propagation speed of 200 m/μsec. Fifty stations are uniformly spaced around the ring. Data frames are 256-bits, including 32 bits of overload. Acknowledgements are piggybacked onto the data frames and are included as spare bits within the data frames and are effectively free. The token is 8 bits. Is the effective data rate of this higher or lower than the effective data rate of a 10-Mbps CSMA/CD network? [8+8]
- 5. (a) What is Multicasting. How it is different from broadcasting. How do you construct a multicast tree. Explain with an example.
 - (b) What are the applications of multicasting. [10+6]
- 6. Compare Leaky bucket and Token bucket algorithms for traffic shaping. [16]
- 7. (a) What is silly window syndrome? Explain Nagle's and Clark's solution for it.
 - (b) When Nagle's algorithm is used? When it is disabled?

Set No. 2

- (c) Explain window management in TCP with the help of an example. [8+4+4]
- 8. (a) What is cipher block chaining? Why it is used. What are its advantages & disadvantages?
 - (b) What is cipher feedback mode? Why it is used? [10+6]

Ronker

Set No. 3

IV B.Tech I Semester Supplementary Examinations, Feb/Mar 2011 COMPUTER NETWORKS

(Common to Electronics & Communication Engineering, Electronics & Instrumentation Engineering and Bio-Medical Engineering) Time: 3 hours Max Marks: 80

Δ n

Answer any FIVE Questions All Questions carry equal marks

- 1. (a) Define the following terms:
 - i. Computer Network
 - ii. Peer process
 - iii. Protocol
 - iv. Interface.
 - (b) Discuss various network applications and goals in detail. [8+8]
- 2. (a) Discuss about transmission in ATM Networks?
 - (b) Discuss the importance of electromagnetic spectrum in communication? [8+8]
- 3. (a) Discuss the error control technique which is commonly used in data network. What value of N is used in go-back-N ARQ technique used in ARPANET and why?
 - (b) Imagine that you are writing the data link software for a line used to send data to you, but not from you. The other end uses HDLC, with a 3-bit sequence number and a window size of seven frames. You would like to buffer as many out of sequence frames as possible to enhance efficiency, but you are not allowed to modify the software on the sending side. Is it possible to have a receiver window greater than one, and still guarantee that the protocol will never fail? If so, what is the largest window that can be safely used? [8+8]
- 4. (a) A token bus is nothing but 'a logical token ring'. Discuss the Statement with examples?
 - (b) In an infinite-population slotted ALOHA system, the mean number of slots a station waits between a collision and its retransmission is 4. Plot the delay versus throughput curve for this system. [8+8]
- 5. Consider establishing physical connection, establishing virtual circuit, and using datagrams. In the context of wired networks which one in preferred and why. In the context of mobile networks which one is preferred and why. [16]
- 6. (a) How leaky bucket algorithm helps in traffic shaping?
 - (b) Explain the working of token bucket algorithm. [8+8]
- 7. (a) What is multiplexing? Why multiplexing is required? What is the difference between upward multiplexing and downward multiplexing?

$1~{\rm of}~2$

Set No. 3

- (b) How to recover from host crashes and router crashes? [8+8]
- 8. What is message Digest? How it is difference from signature methods? What are the properties of message Digest? How Digital signatures are implemented using message Digest? [16]

Ronte

Set No. 4

IV B.Tech I Semester Supplementary Examinations, Feb/Mar 2011 COMPUTER NETWORKS

(Common to Electronics & Communication Engineering, Electronics & Instrumentation Engineering and Bio-Medical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions All Questions carry equal marks

- 1. (a) Differentiate between the following:
 - i. Broadcasting and multicasting
 - ii. Static and dynamic channel allocation
 - iii. Reliable Vs Unreliable communication
 - iv. Half duplex Vs Full duplex communication.
 - (b) What are the various types of computer networks? Discuss various network topologies suitable to a particular type of a computer network? [8+8]
- 2. (a) Discuss circuit switching and packet switching methods. Also discuss their merits and demerits
 - (b) Differentiate between the following:
 - i. bit rate and baud rate
 - ii. single mode fiber and multi mode fiber. [12+4]
- 3. (a) Discuss the various kinds of supervisory frames in HDLC?
 - (b) Consider the operation of sliding window protocol using selective repeat over a 1-Mbps error-free line. The maximum frame size is 1000 bits. New packets are generated about 1 second apart. The timeout interval is 10msec. If the special acknowledgement timer were eliminated, unnecessary timeouts would occur. How many times would the average be transmitted? [8+8]
- 4. What is a token? Discuss the protocol of token ring LAN in general. Discuss with example how priority is implemented in a token ring LAN? [16]
- 5. (a) Explain the working of Distance vector routing algorithm with the help of an example.
 - (b) What is Count to Infinity problem? Suggest solution for it. [10+6]
- 6. (a) How leaky bucket algorithm helps in traffic shaping?
 - (b) Explain the working of token bucket algorithm. [8+8]
- 7. (a) What is Pay load? What is the payload size of the maximum length message that fits in a single AAL 3/4 cell?
 - (b) When a 1024 bytes message is sent with AAL 3/4, what is the efficiency obtained? In other words, what fraction of the bits transmitted are useful data bits? Repeat the problem for AAL 5. [6+10]

1 of 2

Set No. 4

- 8. (a) What is MPEG? How audio & Video are encoded using MPEG?
 - (b) How video is played on Demand?

[8+8]

Routes