Code No: R05321301 **Set No. 1**

III B.Tech Supplimentary Examinations, Aug/Sep 2008
COMPUTER NETWORKS
(Common to Electronics & Control Engineering, Computer Science & Systems Engineering and Electronics & Computer Engineering)
Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) "Although wireless networking and mobile computing are often related, they are not identical". Justify the statement.
   (b) With suitable examples compare point-to-point channels and broadcast channels? [8+8]
2. (a) Discuss various channels supported by ISDN bit pipe?
   (b) Differentiate between virtual circuits and circuit switching? [8+8]
3. (a) How will you determine the performance of stop & wait protocol?
   (b) What is piggybacking? What are its advantages?
   (c) A upper layer message is split into 10 frames, each of which has a 80 percent chance of arriving undamaged. If no error control is done by the data link protocol, how many times must the message be sent on the average to get the entire thing through? [5+5+6]
4. (a) Explain in detail binary count down collision free protocol?
   (b) Give the detailed description of 802.3 frame format? [8+8]
5. (a) Two approaches can be used for ordering of packets, buffering all the packets at the receiver and then reordering them or receiver accepts only packets in order and sender retransmits packets if necessary. Compare these two approaches.
   (b) Consider an environment in which probability of errors is high. What should be packet size in such an environment, Large/ Small? Justify your selection. [10+6]
6. Explain in detail CIDR. [16]
7. (a) Why does UDP exist? Would it now have been enough to just let user processes send raw IP packets?
   (b) A group of N users located in the same building are all using the same remote computer via an ATM network. The average user generates L lines of traffic (input + output) per hour, on the average, with the mean line length being P bytes, excluding the ATM headers. The packet carrier charges C cents per byte of user data transported, plus X cents per hour for each ATM virtual circuit open. Under what conditions is it cost effective to multiplex all N transport connections onto the same ATM virtual circuit, if such multiplexing adds 2 bytes of data to each packet? Assume that even one ATM virtual circuit has enough bandwidth for all the users. [8+8]

8. What is DNS? What is its use? How DNS works? [16]

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Code No: R05321301 **Set No. 2**

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Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Compare point -to-point channels with broadcast channels along with suitable examples?
   (b) A collection of five routers is to be collected in a point-to-point subnet. Between each pair of routers, the designers may put a high speed line, a medium-speed line, a low-speed line, or no line. If it takes 100ms of computer time to generate and inspect each topology, how long will it take to inspect all of them to find the one that best matches the expected load? [8+8]
2. (a) Television channels are 6MHz wide. How many bits/sec can be sent if four level digital signals are used? Assume a noiseless channel
   (b) How does a virtual circuit differ from a physical circuit? What advantages would a virtual circuit provide? [8+8]
3. (a) A channel has a bit rate of 4 kbps and a propagation delay of 20 msec. For what range of frame sizes does stop-and-wait give an efficiency of atleast 50 percent?
   (b) Discuss about the various types of frames in HDLC protocol? [8+8]
4. (a) Discuss about the file key assumptions in case of dynamic channel allocation in LANs and WANs?
   (b) Discuss in detail the working of token bus? [8+8]
5. (a) One potential disadvantage of multicasting is that it scales poorly to large networks. How core- based trees solves this problem.
   (b) What are the applications of multicasting.
   (c) What are the applications of broadcasting. [8+4+4]
6. Compare Leaky bucket and Token bucket algorithms for traffic shaping. [16]
7. (a) Explain the protocol scenarios for establishing a connection using three way handshake.
   (b) Why abrupt connection release results in data loss? [12+4]
8. Explain how privacy is achieved in e-mail system? [16]

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Code No: R05321301 **Set No. 3**

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Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Differentiate between computer network and distributed system?
   (b) What are the important goals achieved through networking?
   (c) Explain about the four main applications of the Internet? [2+6+8]
2. (a) What is the purpose of the physical layer? Discuss various physical media for data transmission?
   (b) Why does ATM use small, fixed lengths cells? [12+4]
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? [8+8]
4. (a) Discuss about fast Ethernet cabling?
   (b) Explain various token bus control frames? [8+8]
5. (a) How the complexity at Network layer & Transport layer varies with connection oriented and connectionless service.
   (b) Suppose Network layer provides connection less service, Transport layer connection oriented service, then how reliability is achieved.
   (c) How Virtual circuit is different from Physical connection. [8+4+4]
6. (a) Explain the pros and cons of an organization using Class A, Class B & Class C addresses.
   (b) Discuss the difficulties with using actual time in the TTL field
   (c) Describe a way of reassembly of IP fragments at the destination. [6+5+5]
7. (a) What is multiplexing? Why multiplexing is required? What is the difference between upward multiplexing and downward multiplexing?
   (b) How to recover from host crashes and router crashes? [8+8]
8. (a) What are the facilities available on the web for locating information?
   (b) How web can be used for e-commerce? [8+8]

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Code No: R05321301 **Set No. 4**

III B.Tech Supplimentary Examinations, Aug/Sep 2008
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(Common to Electronics & Control Engineering, Computer Science & Systems Engineering and Electronics & Computer Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Compare point -to-point channels with broadcast channels along with suitable examples?
   (b) A collection of five routers is to be collected in a point-to-point subnet. Between each pair of routers, the designers may put a high speed line, a medium-speed line, a low-speed line, or no line. If it takes 100ms of computer time to generate and inspect each topology, how long will it take to inspect all of them to find the one that best matches the expected load? [8+8]
2. (a) Television channels are 6MHz wide. How many bits/sec can be sent if four level digital signals are used? Assume a noiseless channel
   (b) How does a virtual circuit differ from a physical circuit? What advantages would a virtual circuit provide? [8+8]
3. (a) What is flow control? Why is essential at the data link layer? Mention few techniques for the same?
   (b) Explain how the band width wastage is reduced in case of sliding window protocol with selective repeat? [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 Dijkstra's shortest path algorithm.
   (b) Consider graph given figure 5b. Compute the shortest path from A to D. [8+8]

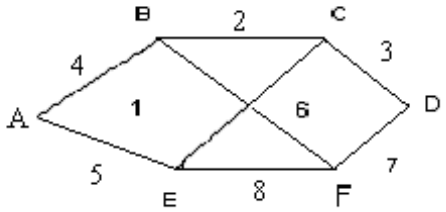

Figure 5b

6. (a) What are the message types used by ICMP? Explain.
   (b) Explain the network protocols.
      i. ARP
      ii. RARP. [6+10]

7. (a) Why does the maximum packet lifetime, T, have to be large enough to ensure that not only the packet, but also its acknowledgments have vanished.
   (b) What are the applications which prefer UDP to TCP. Give suitable justifications?
   (c) What are the disadvantages when Nagle's algorithm is used on badly congested network? [5+6+5]
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]

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