

Code No: V3224**R07****Set No: 1**

III B.Tech. II Semester Supplementary Examinations, November/December - 2012

COMPUTER NETWORKS

(Common to Computer Science and Engineering & Information Technology & Electronics and Computer Engineering)

Time: 3 Hours**Max Marks: 80**Answer any FIVE Questions
All Questions carry equal marks

1. (a) Discuss the advantages of layered architecture. List those layers that are not there in TCP/IP model.
(b) Define LAN. On which basis you will differentiate LAN from other kinds of networks? Why?
2. (a) Discuss various channels supported by ISDN bit pipe.
(b) Draw and describe different field of ATM cell format. Also, list various functions performed by ATM adaption layer.
3. (a) A bit string, 011110111110111110, needs to be transmitted at the data link layer. What is the string actually transmitted after bit stuffing? Explain.
(b) What is error detection? Explain with examples.
4. (a) Explain the CSMA protocols and show channel utilization graph.
(b) Compare the delay of pure ALOHA Vs slotted ALOHA at low load. Which one is less? Explain.
5. (a) Briefly explain shortest path routing algorithm.
(b) Describe a way to reassemble IP fragments at the destination.
(c) Suppose that instead of using 16-bits for the network part of class B addresses, especially 27 bits had been used. How many class B networks would there have been?
6. (a) Briefly explain network layer in ATM networks.
(b) Explain in detail about congestion avoidance algorithm.
7. (a) Illustrate and explain UDP and its packet format.
(b) What is multiplexing? Why multiplexing is required? What is the difference between upward multiplexing and downward multiplexing?
8. (a) Explain the architecture of WWW.
(b) DNS uses UDP instead of TCP. If a DNS part is lost, there is no automatic recovery. Does this cause a problem and if so, how is it solved?

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Time: 3 Hours**Max Marks: 80**Answer any FIVE Questions
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1. (a) What do you mean by reference model? Differentiate between OSI & TCP/IP reference model.
(b) Briefly describe the reasons for using layered protocols.
2. (a) Differentiate between simplex, half duplex and full duplex data communication.
(b) Why does ATM use small & fixed length cells?
(c) List the differences between message switching and packet switching.
3. (a) When bit stuffing is used, is it possible for the loss, insertion and modification of a single bit to cause an error message detected by the check sum? If not, why not? If so, how? Does the checksum length play a role here?
(b) Discuss the functioning of SLIP
4. (a) IEEE 802.16 supports four service classes. What are they? Which service class is the best choice for sending an uncompressed video? Why?
(b) Write a note on bridges.
5. (a) Tunneling through a concatenated virtual circuit subnet is straightforward. The multiple router at one end just sets a virtual circuit to the other end and passes packets through it. Can tunneling also be used in data gram subnets? If so, how?
(b) What is the effect of link failures in Virtual circuit subnet. Congestion can be easily controlled in Virtual circuit subnet. Explain.
6. (a) Give the general principles of congestion control algorithms.
(b) Explain hop-by-hop choke packets method for congestion control.
7. (a) Explain the user datagram protocol (UDP) in detail.
(b) How to recover from host crashes and router crashes?
8. (a) What is the difference in transferring compressed and uncompressed video?
(b) Can a machine with simple DNS name have multiple IP addresses? How could this occur?

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Time: 3 Hours**Max Marks: 80**Answer any FIVE Questions
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1. (a) Briefly describe various protocols and networks in TCP/IP model.
(b) Differentiate between networking and Internet. Explain with suitable examples.
2. (a) Differentiate between virtual circuits and circuit switching.
(b) What is time division multiplexing? Explain how statistical TDM overcomes the disadvantages of synchronous TDM
3. (a) Data link protocol almost always put the CRC in a trailer rather than at header. Why?
(b) Discuss the advantages and disadvantages of credits Vs sliding window protocols.
4. (a) Explain Ethernet Frame format. Give the significance of pad field.
(b) Give the reasons why networks might use an error correcting code instead of error detection and retransmission.
5. (a) A network on Internet has a subnet mask of 255.255.240.0. What is the maximum number of hosts it can handle?
(b) Is fragmentation needed in concatenated virtual circuit interest or only in data gram system?
6. (a) Give the potential disadvantages when Nagel's algorithm is used on a badly congested network.
(b) What is Fair queuing in the context of congestion control? What is the main problem with fair queuing? How it is solved?
7. (a) Give advantages of RPC on UDP over transactional TCP. Give the advantages of TCP over RPC.
(b) Explain flow control and buffering in transport layer.
8. (a) Explain simple network management protocol in detail.
(b) Can a computer have two DNS names that fall in different top level domains? If so, give a plausible example. If not, explain why?

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Time: 3 Hours**Max Marks: 80**Answer any FIVE Questions
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1. (a) List the ways in which OSI model and TCP/IP model are same.
(b) How many ways to connect the Internet? Explain each with merits and demerits.
2. (a) Discuss various channels supported by ISDN bit pipe
(b) What are various transmission media available? State advantage and disadvantages.
3. (a) A channel has a bit rate of 4 kbps and a propagation delay of 20 msec. For what messages of frame sizes does stop-and-wait give an efficiency at least 50%?
(b) To provide more reliability than a single parity bit can give, an error-detecting coding scheme uses one parity bit for checking all the odd numbered bits and a second parity bit for all the even numbered bits. What is the Hamming distance of this code?
4. (a) What is the prime difference between a token bus and a token ring?
(b) A large population of ALOHA users manages to generate 50 requests/sec, including both originals and retransmissions. Time is slotted in the units of 40 msec.
 - i. What is the chance of success on the first attempt?
 - ii. What is the probability of exactly k collisions and then a success?
 - iii. What is the expected number of transmission attempts needed?
5. (a) Explain the distance vector routing algorithm.
(b) Convert the Input address where hexadecimal representation is C22F2582 to dotted decimal solutions.
6. (a) Explain hop-by-hop choke packets method for congestion control.
(b) Write a note on congestion avoidance mechanisms.
7. (a) Describe the connection establishment procedure in transport layer.
(b) Why does UDP exist? Would it not be enough to just let user processes find raw IP packet? Explain.
8. (a) When external viewers are needed? How does a browser know which one to use?
(b) What is the difference in transferring compressed and uncompressed video?
