

29-08-19

Total No. of printed pages = 6

CS 131607

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Roll No. of candidate

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2019

B.Tech. 6th Semester End-Term Examination

COMPUTER COMMUNICATION NETWORK

Full Marks – 100

Time – Three hours

The figures in the margin indicate full marks
for the questions.

Answer question No. 1 and any *six* questions from
the rest.

1. Answer the following questions : (10 × 1 = 10)
- (i) Application layer is implemented in
- (a) End system
 - (b) NIC
 - (c) Ethernet
 - (d) None of the mentioned
- (ii) Delimiting and synchronization of data exchange is provided by
- (a) Application layer
 - (b) Session layer
 - (c) Transport layer
 - (d) Link layer

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- (iii) HFC contains
- (a) Fibre cable
 - (b) Coaxial cable
 - (c) Both Fibre cable and Coaxial cable
 - (d) None of the mentioned
- (iv) Automatic repeat request error management mechanism is provided by
- (a) Logical link control sub layer
 - (b) Media access control sub layer
 - (c) Network interface control sub layer
 - (d) None of the mentioned
- (v) The technique of temporarily delaying outgoing acknowledgements so that they can be hooked onto the next outgoing data frame is called
- (a) Piggybacking
 - (b) Cyclic redundancy check
 - (c) Fletcher's checksum
 - (d) None of the mentioned

- (vi) ICMP is primarily used for
- (a) Error and diagnostic functions
 - (b) Addressing
 - (c) Forwarding
 - (d) None of the mentioned
- (vii) A local telephone network is an example of a _____ network.
- (a) Packet switched
 - (b) Circuit switched
 - (c) Both Packet switched and Circuit switched
 - (d) Line switched
- (viii) Which of the following field in IPv4 datagram is not related to fragmentation?
- (a) Flags
 - (b) Offset
 - (c) TOS
 - (d) Identifier
- (ix) DNS database contains
- (a) Name server records
 - (b) Hostname-to-address records
 - (c) Hostname aliases
 - (d) All of the mentioned

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(x) In OSPF header, which field is used to detect errors in the packet?

- (a) Type
- (b) Area ID
- (c) Authentication type
- (d) Checksum

2. (a) Describe data communication system along with its various components. (3)

(b) Given a message, $M = 01110101$, with this message explain the steps involved in Hamming code method of error detection and correction. (5)

(c) Explain the functionalities of different OSI layers. (7)

3. (a) Compare different error control protocols used in Data link layer. (5)

(b) Explain the advantage of CSMA/CA over CSMA/CD. (5)

(c) A pure ALOHA network transmits 200-bit frames on a shared channel of 200 kbps. What the throughput if the system (all stations together) produces 1000 frames per second? (5)

4. (a) Distinguish between bridge and switch. (3)
- (b) Explain the frame format used in Token ring network. Use diagram. (5)
- (c) Explain various transmission media with their characteristics. (7)
5. (a) Compare various persistent methods used in CSMA. (3)
- (b) Explain the working principle of OSPF. (5)
- (c) Given a message $M(x) = x^6 + x^4 + x^2 + 1$ and generator polynomial is $G(x) = x^3 + x^2 + 1$. Find the code word using CRC method and discuss regarding the acceptance of the transmitted code word. (7)
6. (a) Differentiate between packet switching and circuit switching. (3)
- (b) Explain Class A and Class B IP addressing. (5)
- (c) Explain the use of ARP and RARP. (7)
7. (a) Compare different network topologies. Use suitable diagram. (5)
- (b) Describe any two mechanisms to improve QoS in case of congestion control in network. (10)

8. (a) How does HTTP works? (5)
- (b) Explain the IPv6 header format with diagram. (5)
- (c) Explain the working mechanism of CIDR. (5)
9. (a) How does a SSH connection works? (3)
- (b) Point out the differences between Link state and Distance vector Routing algorithm. (5)
- (c) What is the significances of DNS? How does it resolve the IP address? (2 + 5 = 7)

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