Code No: R31052 **R10** **Set No: 1**

III B.Tech. I Semester Supplementary Examinations, June/July - 2014

COMPUTER NETWORKS

(Common to Computer Science and Engineering & Information Technology)

Time: 3 Hours **Max Marks: 75**

Answer any FIVE Questions

All Questions carry equal marks

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1. (a)What is the difference between half-duplex and full-duplex transmission modes?
   (b)Why are protocols needed? Name the four basic network topologies, and discuss the advantages and drawbacks of each of them.

2. (a) Compare the wavelength division multiplexing with the frequency division multiplexing.
   (b) Four data channels (digital), each transmitting at 1 Mbps, use a satellite channel of 1 MHz. Design an approximate configuration, using FDM.

3. (a) Discuss the concept of redundancy in error detection and correction.
   (b) What is the hamming distance? Discuss what kind of error is undetectable by the checksum.

4. (a) Write the send window and receive window for Go-Back-N-ARQ protocol.
   (b) Write the Go-back-N sender algorithm and explain it.

5. (a) What is meant by channelization? Explain FDMA.
   (b) Draw the flow diagram for CSMA/CA and explain it.

6. (a) Write the 802.3 MAC frame format and explain it clearly.
   (b) Discuss how the Fast Ethernet is implemented and discuss about encoding for it.

7. (a) With a neat diagram explain the AMPS reverse communication band.
   (b) What are the three categories of satellites? Explain them.

8. Write short notes on the following:
   (a) Block coding
   (b) Remote bridges
   (c) Virtual LANs.

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Code No:R31052 **R10** **Set No: 2**

III B.Tech. I Semester Supplementary Examinations, June/July - 2014

COMPUTER NETWORKS

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Time: 3 Hours **Max Marks: 75**

Answer any FIVE Questions

All Questions carry equal marks

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1. (a) Compare the telephone network and the Internet. What are the similarities? What are the differences?
   (b) What are the four categories of network topologies? Explain them with suitable examples.

2. (a) Compare the space-division and time-division multiplexing.
   (b) Compare and contrast a circuit-switched network and a packet-switched network.
   (c) Discuss the various approaches to packet switching.

3. (a) With a neat diagram explain the CRC encoder and decoder.
   (b) Discuss clearly the Linear blocking codes.

4. (a) Explain the simplex protocol and stop-and-wait-protocol.
   (b) Discuss clearly how the Go-back-N automatic repeat request protocol works.

5. (a) Discuss how the frames will be in a pure ALOHA network.
   (b) Explain the procedure for pure ALOHA protocol and also discuss about its vulnerable time.

6. (a) Discuss about Switched Ethernet and Full-Duplex Switched Ethernet.
   (b) Explain the encoding process in Gigabit Ethernet implementation.

7. (a) What is the relationship between D-AMPS and AMPS? What is the function of the CDMA in IS-95?
   (b) Which type of orbit does a GEO satellite have? Compare an uplink with a downlink.

8. Write short notes on the following:
   (a) Bridges
   (b) MEO satellite
   (c) Bluetooth layers.

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Code No:R31052 **R10** **Set No: 3**

III B.Tech. I Semester Supplementary Examinations, June/July - 2014

COMPUTER NETWORKS

(Common to Computer Science and Engineering & Information Technology)

Time: 3 Hours **Max Marks: 75**

Answer any FIVE Questions

All Questions carry equal marks

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1 (a) What are the responsibilities of the network layer and transport layer in the Internet model?
(b) Explain clearly the interaction between layers in the OSI model.

2 (a) Discuss the classification of switched networks. Explain a trivial circuit-switched network.
(b) Draw the diagram of a datagram network with four switches. And explain how it will work.

3 (a) Explain the process of error detection in block coding.
(b) What are cyclic codes? With a neat diagram explain the CRC encoder and decoder.

4 (a) Compare the simplex protocol and stop-and-wait protocol.
(b) Discuss how to design the stop-and-wait ARQ protocol.

5 (a) Discuss how the frames will be in a slotted ALOHA network.
(b) Explain about CSMA and draw the flow diagram for three persistence methods.

6 (a) What is meant by Gigabit Ethernet? Discuss its implementation.
(b) Discuss the differences between a unicast, multicast and broadcast address.

7 (a) What is the difference between a hard handoff and a soft handoff?
(b) Discuss the relationship between a base station and a mobile switching centre.
(c) Discuss the purpose of GPS.

8 Write short notes on the following:
(a) Bluetooth protocol stack
(b) Remote bridges
(c)LEO Satellite.

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Code No:R31052 **R10** **Set No: 4**

III B.Tech. I Semester Supplementary Examinations, June/July - 2014

COMPUTER NETWORKS

(Common to Computer Science and Engineering & Information Technology)

Time: 3 Hours **Max Marks: 75**

Answer any FIVE Questions

All Questions carry equal marks

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1 (a) What are the responsibilities of the Data link layer in the OSI model? Explain them.
(b) Discuss the TCP/IP protocol suite.

2 (a)Explain the process of frequency division multiplexing with a suitable example.
(b) Five channels, each with a 100 kHz bandwidth, are to be multiplexed together. What is the minimum bandwidth of the link if there is a need for a guard band of 10 kHz between the channels to prevent interference?

3 (a) Discuss clearly about linear block code and cyclic code.
(b) We need a data word of at least 16 bits. Find the values of 'k' and 'n' in the Hamming code C(n,k) with d_{min}=3.

4 (a) Discuss how to design a stop-and-wait protocol. Give a suitable example.
(b)Write the sender-site and receiver-site algorithms for stop-and-wait ARQ protocol.

5 (a)Write the flow diagram for the CSMA/CD and also write the timing in CSMA/CA.
(b)What is meant by controlled access? Write the logical ring and physical topology in token-passing access method.

6 (a)What are the common Ten-Gigabit Ethernet implementations? Discuss the relationship between a switch and a bridge.
(b) Compare the data rates for Standard Ethernet, Fast Ethernet, Gigabit Ethernet, and Ten-Gigabit Ethernet.

7 (a) Discuss the purpose of cellular telephony. And explain the cellular bands for AMPS.
(b) What is meant by GSM? Explain the GSM bands and it's working.

8 Write short notes on the following:
(a) Satellite networks
(b) Virtual LANs
(c) IEEE 802.11 frame structure.

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