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

III B.Tech. I Semester Regular Examinations, November/December - 2012

COMPUTER NETWORKS

(Comm to Computer Science and Engineering and Information Techonology)

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

Answer any FIVE Questions

All Questions carry equal marks

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1. (a) Discuss the ISO - OSI layered model, bringing out the functionalities of each layer
   (b) Define the term "Network". Explain different types of networks

2. (a) What is multiplexing? Why is it necessary? Compare synchronous time division multiplexing with statistical time division multiplexing.
   (b) Differentiate between virtual circuits and circuit switching?

3. Draw a CRC encoder and decoder for CRC code with C (7, 4). Also explain how this CRC design works, with an example

4. (a) What is HDLC? For what purpose it is used? Explain its frame format..
   (b) Discuss about various framing techniques? Mention their advantages and disadvantages?

5. (a) What is pure ALOHA and slotted ALOHA? Mention the advantages of slotted ALOHA?.
   (b) What is CSMA? Bring out the differences between 1-persistent, non-persistent, and p-persistent, CSMA.

6. (a) Discuss the standard Ethernet MAC sub-layer primary responsibilities.
   (b) Enlighten on the frame structure of IEEE 802.11 frame structure.

7. (a) Give the basic Bluetooth architecture. Explain about various layers in it.
   (b) Briefly describe the characteristics of various categories of satellites.

8. (a) Explain the working of remote Bridges. Also, write advantages and disadvantages of remote bridges.
   (b) Compare and Contrast spanning tree bridges with remote bridges.

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

III B.Tech. I Semester Regular Examinations, November/December - 2012

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) Explain in details function of all the layer of OSI model.
   (b) List the differences between logical , physical and port addresses.

2. (a) Define virtual circuit and datagram approaches. Also differentiate between virtual circuit subnet and datagram subnet.
   (b) How is WDM similar to FDM? How are they different?

3. (a) Define the four types of redundancy checks used on data communication. Explain with example?
   (b) Briefly explain the services provided by physical layer to network layer.

4. (a) What are the differences between 'Go-Back-N' and 'Selective-Repeat' sliding window protocols ? Explain using an example.
   (b) Compare and contrast HDLC and PPP..

5. Why are multiple accesses required in LAN technologies? Compare FDMA, TDMA and CDMA in terms of their ability to handle groups of stations?

6. (a) Explain basic IEEE 802.3 Ethernet MAC Data Frame.
   (b) Give the architecture of IEEE 802.11 Ethernet.

7. (a) Bluetooth is different from most network protocols. How? Justify your answer with suitable examples.
   (b) Briefly describe LEO satellite network with neat diagram and Key features of the GEO satellites.

8. (a) What are the causes of signal loss in satellite communication? Explain in detail.
   (b) Briefly describe the reasons why a single organization may end up with multiple LANs and choose bridges.

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

III B.Tech. I Semester Regular Examinations, November/December - 2012

COMPUTER NETWORKS

(Comm to Computer Science and Engineering and Information Techonology)

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

Answer any FIVE Questions

All Questions carry equal marks

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1. (a) Explain the various layers of TCP /lP model. Also, list the protocols used in each layer.
   (b) What is Internet? Mention some of the applications of Internet.

2. (a) Differentiate between virtual circuit and data gram subnet..
   (b) Why use of Virtual circuits, increases initial delay?

3. (a) How does CRC checker know that the received data unit is undamaged? Explain with example?
   (b) List the protocols for noisy channels. Explain stop and wait protocol for noiseless channels.

4. (a) Explain how the band width wastage is reduced in case of sliding window protocol with selective repeat?
   (b) Define point to point protocol. Explain the frame format of PPP.

5. (a) Explain the working of CSMA/CD?
   (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??

6. (a) Discuss the standard Ethernet cabling and cable topologies.
   (b) Briefly describe the addressing mechanism in 802.11(Wi-Fi).

7. (a) Illustrate simplex, half-duplex and full duplex modes. Explain with relevant examples for each. What mode is used when two people are communicating by a telephone line ?
   (b) Briefly explain the protocol stack architecture of Bluetooth.

8. (a) What are bridges? Give the characteristics of them. Compare bridges with routers.
   (b) Name different types of Bridges and explain any one of them.

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

III B.Tech. I Semester Regular Examinations, November/December - 2012

COMPUTER NETWORKS

(Comm to Computer Science and Engineering and Information Techonology)

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

Answer any FIVE Questions

All Questions carry equal marks

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1. (a) What are the advantages of having layered architecture? Mention the layers of ISO-OSI reference model?
   (b) Explain, why flow control is handled at two different layers of OSI.

2. (a) What is switching? Compare circuit, packet and message switching techniques.
   (b) Explain the two types of TDM implementation an how do they differ from each other.

3. Briefly explain following:
   a. Checksum error detection technique.
   b. Code Division Multiple Access

4. (a) Briefly describe the configuration and transfer modes of HDLC.
   (b) Explain GoBackN protocol with the help of a suitable diagram.

5. (a) Compare and contrast code division multiplexing and time division multiplexing.
   (b) How CSMA/CA works? Explain each term with respect to CSMA/CA in detail.

6. (a) Using Differential Manchester encoding scheme, draw the time vs. amplitude graphs for the bit stream 0101101001.
   (b) Briefly describe the functions of MAC sub layer.

7. (a) Give the frame structure of Blue Tooth. Explain each field in detail.
   (b) Briefly describe Principles of cellular frequency reuse

8. (a) Explain Spanning tree bridges and Source routing bridges.
   (b) Give the limitations of bridges.
   (c) With a neat diagram explain remote bridges.

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