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## **COLLEGE OF ENGINEERING, PUNE**

(An Autonomous Institute of Govt. of Maharashtra)

### **END-SEM EXAMINATION- NOV/DEC-2012**

# (CT 310) DATA COMMUNICATION AND NETWORKING

Class: - T.Y. B. Tech. (Information Technology)

Year: - 2012-13

Semester: - V

**Duration: - 3 Hrs** 

Max. Marks: - 50

#### Instructions:

- 1. All the Questions are compulsory.
- 2. Assume suitable data whenever necessary.
- 3. Draw neat figures wherever required.
- 4. Figures to right indicate full marks.
- Q.1 A) What is the minimum and maximum size of an Ethernet frame? [05] Explain the breakup of this size between the fields. An Ethernet MAC sub layer receives 1510 bytes of data from the upper layer. Can the data be encapsulated in one frame? If not, how many frames need to be sent? What is the size of the data in each frame?
  - B) Construct the Hamming code for the bit sequence 1001101 [05] which is send by sender machine A. Now Imagine that by the time the above transmission is received by Receiver Machine B, the number 7<sup>th</sup> bit of Hamming code has changed from 1 to 0. Find the Error detection using Hamming code.
- **Q.2. A)** Explain different key assumptions described for Dynamic [05] Channel Allocation in LANs and MANs.
  - **B)** A sender needs to send the four data items Ox3456, OxABCC, [05] Ox02BC, and OxEEEE.

#### **Answer the following:**

- 1. Find the checksum at the sender site.
- 2. Find the checksum at the receiver site if there is no error.
- **3.** Find the checksum at the receiver site if the second data item is changed to OxABCE.
- **4.** Find the checksum at the receiver site if the second data item is changed to OxABCE and the third data item is changed to Ox02BA.

**PTO** 

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Q.3.	A)	Why millions of Internet users who need to connect their home computers to the server of an Internet service provider use PPP? Enlist the different services are provided by PPP and missing services?  OR	[05]
	B)	What are three sets of protocols are defined to make PPP powerful? What are three categories of LCP packets? Weather Challenge Handshake Authentication Protocol (CHAP) provides greater security than PAP? Justify your answer.	[05]
	C)	How to allocate the multi-access channel among competing users? Do we need a multiple access protocol when we use the local loop of the telephone company to access the Internet? Why?	[05]
Q.4.	A)	What should a station do if the channel is busy? And what should a station do if the channel is idle?	[05]
	B)	<ul> <li>Answer the following</li> <li>1. Compare and contrast the Go-Back-N ARQ Protocol with Selective-Repeat ARQ.</li> <li>2. Define piggybacking and its usefulness</li> </ul>	[05]
Q.5.	A)	<ul> <li>In CRC, show the relationship between the following entities (size means the number of bits):</li> <li>1. The size of the dataword and the size of the codeword</li> <li>2. The size of the divisor and the remainder</li> <li>3. The degree of the polynomial generator and the size of the divisor</li> <li>4. The degree of the polynomial generator and the size of the remainder</li> </ul>	[06]
	B)	Compare ALOHA and Carrier Sense Multiple Access with Collision Detection (CSMA/CD).	[04]

OR