4. (a) Define the term "IP address", "MAC address"and "hardware/physical address". Also explain the terms "address pair"and "ARP cache".

   (b) Write a short note on Bluetooth.

5. (a) Describe with the help of suitable diagram the Go-back-N continuous RQ error control scheme.

   (b) Describe the main fields in an Ethernet frame header.

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(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 121801 **Roll No.** | | | | | | | | | | |

B.TECH

Theory Examination (Semester-VIII) 2015-16

DATA COMMUNICATION NETWORKS

Time : 3 Hours ***Max. Marks : 100***

Section-A

1. Attempt all parts. All parts carry equal marks. Write answer of each part in sort. (2×10 = 20)

(a) Group the OSI layer by function.

(b) Distinguish between connectionless and connection oriented services.

(c) How does guided media differ from unguided media?

(d) What is the importance of cryptography?

(e) Enlist the difference between message switching and packet switching.

(f) What do you understand by multicast and broadcast operational mode of a communication channel?

(g) State the relationship between data rate and bandwidth.

(h) Which services are provided by transport layer to upper layer?

(i) Explain the salient fetures of DHCP.

(j) Compare TCP/IP and OSI model data communication networks.

Section-B

2. Attempt any five questions from this section. (10×5 = 50)

(a) Describe the functions of different layers of OSI model with neat diagram.

(b) What is CSMA/CD? Consider building a CSMA/CD network running 1Gbps over a 1 Km cable with no repeaters. The signal speed in the cable is 200000 km/second. What is the minimum frame size?

(c) Describe ALOHA protocol? What do you understand by pure ALOHA and slotted ALOHA?

(d) Explain internet control message protocol (ICMP). List the message types associated with the protocol.

(e) What do you mean by flow control? Describe stop and wait flow control technique.

(f) Explain and compare the performance of different line code.

(g) Enlist the services provided by application layer. What do you understand by HTTP?

(h) What is congestion control? Suppose that the TCP congestion window is set to 18 kb and a time out occurs. How big will the window be if the next four transmission bursts are all successful? Assume that the maximum segment size in 1kb.

Section-C

Note : Attempt any two questions in this section. (15×2 = 30)

3. (a) Draw the TCP/IP network architectural model and explain the features of various layers. Also list the important protocols at each layer and describe its purpose.

(b) Describe header format of TCP protocol.

4. (a) Define the term "IP address", "MAC address"and "hardware/physical address". Also explain the terms "address pair"and "ARP cache".

   (b) Write a short note on Bluetooth.

5. (a) Describe with the help of suitable diagram the Go-back-N continuous RQ error control scheme.

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Theory Examination (Semester-VIII) 2015-16

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