

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

Paper ID : 121801

Roll No. 1203221027

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.

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- (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 features 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?

(2)

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- (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 is 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.

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