Total No. of printed pages = 6

CS 131607

27/06/18

Roll No. of candidate | | | | | | | | | | |

2018

B.Tech. 6th Semester End-Term Examination

COMPUTER COMMUNICATION NETWORK

Full Marks – 100 Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer Q.No. 1 and any *six* from the rest.

1. Multiple Choice questions : $(10 \times 1 = 10)$

(a) The amount of time taken by a message to travel from one device to another is known as

(i) Delay

(ii) Response time

(iii) Transit time

(iv) Throughput

(b) The network topology which uses hierarchy of nodes is

(i) Ring (ii) Tree

(iii) Bus (iv) Fully connected

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(c) A MAN is ———— in size as compared to a LAN

(i) Larger

(ii) Smaller

(iii) Equal

(iv) None of these

(d) Which of these is not key element of a protocol?

(i) Syntax

(ii) Standard

(iii) Semantics

(iv) Timing

(e) CRC computation is based on

(i) OX operation

(ii) AND operation

(iii) XOR operation

(iv) NOR operation

(f) VRC parity bit is associated with

(i) Rows

(ii) Columns

(iii) Both (i) and (ii)

(iv) None of these

(g) The main function of transport layer is ———

(i) Synchronization

(ii) Node-to-node delivery

(iii) Process-to process delivery

(iv) Updating routing tables

(h) Which of the following is/are an application layer service?

(i) File transfer and access

(ii) Domain name service

(iii) Remote login

(iv) All of these

(i) Current state-of-art LAN use ———— topology

(i) Star

(ii) Ring

(iii) Bus

(iv) Mesh

(j) Connectionless transfer

(i) Requires a logical connection

(ii) Requires a physical connection

(iii) Transfer data without any connection

(iv) It same as connection -oriented transfer

2. (a) What is meant by data communication? What are the characteristics of an efficient data communication system?

(b) What are the components of a data communication system?

(c) Explain different modes of data transmission between two devices. (5 + 5 + 5 = 15)

3. Differentiate between (any *three*) :

(a) Point-to-point and multipoint connection

(b) IPv4 and IPv6

(c) Circuit switching and packet switching

(d) Router and switch

(e) Guided and unguided transmission media. (3 × 5 = 15)

4. (a) Assume a network with n devices. Calculate how many links are required to set up this network with mesh, ring, but and star topologies. Discuss bus and mesh topology. Compare them.

(b) What is the necessity of using 7 layers concept in OSI model? List the five key differences between TCP and OSI reference mode. (8 +7 =15)

5. (a) Explain how slotted ALOHA improves performance of system over pure ALOHA.

(b) Explain nonpersistent. 1-persistent and p-persistent in CSMA.

(c) A multiple access network transmit 200-bit frame on a started channel of bandwidth 200 kps. What is the through of the system if it produces?

(i) 1000 frame/sec

(ii) 250 frame/sec

Show the result in case of pure ALOHA.

(5 + 5 + 5 = 15)

6. (a) Differentiate between flow control and congestion control.

(b) Explain two mechanisms to improve the QOS in the case of congestion over a network.

(5 + 10 = 15)

7. (a) Discuss frame format of IEEE 802.3 standard.

(b) A 7-bit Hamming code is received as 1100101. What is the correct code?

(c) Given message is $M(x) = x^5 + x^4 + x + 1$ and the generator is $G(x) = x^4 + x^3 + 1$. Compute CRC and write codeword. (5 + 5 + 5 = 15)

8. (a) Explain how DNS resolve a URL to an IP address.

(b) Explain in detail any one of the routing algorithm. (5 + 10 = 15)

9. Write short notes on (any *three*) :

(a) HTTP

(b) Telnet

(c) CSMA/CD

(d) Stop and wait ARQ

(e) ARP and RAPP. $(3 \times 5 = 15)$
