Roll No

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING
END TERM EXAMINATION - JAN 2023

Semester : Semester V - 2020

Course Code : CSE2011

Course Name : Sem V - CSE2011 - Data Communications and Computer Networks

Program : B.Tech. CSE and Allied Branches

Date : 4-JAN-2023

Time : 9.30AM - 12.30PM

Max Marks : 100

Weightage : 50%

Instructions:
(i) Read all questions carefully and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and non-programmable calculator are permitted.

PART A

ANSWER ALL THE TEN QUESTIONS   10 X 2 = 20M

1. List the flag bits of TCP header.

   (CO1) [Knowledge]

2. List the five layers in the Internet protocol stack? How it is differenct from ISO/OSI model.

   (CO1) [Knowledge]

3. List out the different HTTP Response Status codes.

   (CO1) [Knowledge]

4. What is DNS?Explain different levels of DNS in short.

   (CO1) [Knowledge]

5. Explain Approches towards congestion control in brief..

   (CO1) [Knowledge]

6. What is CIDR?List out the rules for CIDR block.

   (CO2) [Knowledge]

7. Define NAT and DHCP.

   (CO2) [Knowledge]

8. What is goal of Simple parity check and Cyclic Redundancy check?

   (CO3) [Knowledge]

9. Define Attenuation and Distortion.   (CO4) [Knowledge]

10. What is the transmission time of a packet sent by a station if the length of the packet is 1 million bytes and the bandwidth of the channel is 200 Kbps?

    (CO4) [Knowledge]

ANSWER ALL THE FIVE QUESTIONS   **5 X 10 = 50M**

11. Identify the reliable protocol of transport layer .With neat diagram explain the header format for the same.

(CO1) [Comprehension]

12. Given a block of IP Addresses ranging from 19.16.2.61 to 19.16.2.124.

   a. Is it a CIDR block?
   b. If yes, give the CIDR representation.

(CO2) [Comprehension]

13. Change the following IPv4 addresses from dotted-decimal notation to binary notation and vice versa.

   a. 200.255.0.1
   b. 192.168.10.1
   c. 102.168.3.4
   d. 11000001 10101000 10000100 11000000
   e. 10000101 11111000 10111110 10001000

(CO2) [Comprehension]

14. Explain IPV4 datagram header format in detail with neat diagram.

(CO3) [Comprehension]

15. Define Data Communication.Explain Characteristics and Components of Data Communication in detail.

(CO4) [Comprehension]

PART C

ANSWER ALL THE TWO QUESTIONS   **2 X 15 = 30M**

16. A bit stream 1101011011 is transmitted using the standard CRC method. The generator polynomial is x^4+x+1.

   a. What is the divisor for the given polynomial?
   b. What is the actual bit string transmitted?
   c. Suppose the third bit from the left is inverted during transmission. How will receiver detect this error?

(CO2) [Application]

17. Consider the network of cities named as a,b,c,d,e,f,g,h,and i by interconnecting them with following connections:
City a is connected to b with 2km, c with 5 km and d with 2 km.
City b is connected to a with 2 km, c with 3km, and e with 1 km.
City c is connected to a with 5 km, b with 3 km, d with 3 km, e with 1 km, f with 1 km, and h with 1 km.
City d is connected to a with 2 km, c with 3 km and g with 2 km.
City e is connected to b with 1 km, c with 1 km and i with 7 km.
City f is connected to c with 1 km, g with 2 km and h with 1 km.
City g is connected to city d with 2 km and city f with 2 km.
City h is connected to c with 1 km, f with 3 km and i with 1 km.
City i is connected to e with 7 km and h with 1 km.
Construct the network graph and find the shortest path from the source i using link state algorithm.

(CO3) [Application]

*****