

Roll No



**PRESIDENCY UNIVERSITY
BENGALURU**

**SCHOOL OF ENGINEERING
END TERM EXAMINATION - JAN 2023**

Semester : Semester III - 2021

Course Code : CSE2011

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

Program : B.Tech. - CSE (All)

Date : 9-JAN-2023

Time : 1.00PM -
4.00PM

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. Define Topology. List different topologies in the network.
(CO1) [Knowledge]
2. How TCP/IP Model is different from ISO/OSI model?
(CO1) [Knowledge]
3. Explain Sockets in brief with neat diagram.
(CO1) [Knowledge]
4. Define Persistent and Non persistent HTTP.
(CO1) [Knowledge]
5. Identify and write the related layer for the following responsibility of TCP/IP model:
 - a. Route determination
 - b. Flow control
 - c. Interface to transmission media
 - d. Provides access for the end user
(CO1) [Knowledge]
6. Explain Distance vector Algorithm with equation in brief.
(CO2) [Knowledge]
7. What is CIDR? List out the rules for CIDR block.
(CO2) [Knowledge]

8. Explain MAC and ARP in short.

(CO3) [Knowledge]

9. The loss in a cable is usually defined in decibels per kilometer (dB/km). If the signal at the beginning of a cable with -0.3 dB/km has a power of 4 mW, what is the power of the signal at 3 km?

(CO4) [Knowledge]

10. If a periodic signal is decomposed into five sine waves with frequencies of 100, 300, 500, 700, and 900 Hz, what is its bandwidth?

(CO4) [Knowledge]

PART B

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 19.16.2.32 to 19.16.2.47.

a. Is it a CIDR block?

b. If yes, give the CIDR representation.

(CO2) [Comprehension]

13. Change the following IP addresses from dotted-decimal notation to binary notation.

a. 180.10.3.2

b. 161.60.32.1

c. 11.3.2.0

d. 255.245.60.10

e. 100.12.10.5

(CO2) [Comprehension]

14. Identify the primary protocol of network layer. Explain the header format for the latest version with neat diagram.

(CO3) [Comprehension]

15. Define data communication. Explain characteristics and components of data communication.

(CO4) [Comprehension]

PART C

ANSWER ALL THE TWO QUESTIONS

2 X 15 = 30M

16. The network is formed with 5 cities named as A,B,C,D,E,F with each city is connected to another city as follows:

City A is connected with city B with 2 km, city D with 1 km and city C with 5 km.

City B is connected with city A with 2 km, city C with 3 km and city D with 2 km.

City C is connected with city B with 3 km, city D with 3 km and city E with 1 km and city F with 5 km.

City D is connected with city A with 1 km, city B with 2 km, city C with 3 km and city E with 1 km.

City E is connected with city C with 1 km, city d with 1 km and city F with 2 km.

City F is connected with city C with 5 km and city E with 2 km.

Construct the network graph and find the shortest path using link state routing algorithm from city F.

(CO2) [Application]

17. A bit stream 1001110101111 is transmitted using the standard CRC method. The generator polynomial is x^2+x .

a. What is the divisor for the given polynomial?

b. What is the Final code word transmitted?

c. Suppose the 4th bit from the left is inverted during transmission. How will receiver detect this error?

(CO3) [Application]
