

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 Braches

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. Explain guided and unguided media in short with examples
(CO1) [Knowledge]
2. List all the seven layers of ISO/OSI model.
(CO1) [Knowledge]
3. Explain Client Server Architecture and Peer-Peer Architecture in Brief.
(CO1) [Knowledge]
4. What is the difference between Persistent and Non Persistent HTTP?
(CO1) [Knowledge]
5. The signal-to-noise ratio is often given in decibels. Assume that SNRdB=36 and the channel bandwidth is 2 MHz. Calculate the theoretical channel capacity.
(CO1) [Knowledge]
6. List out the difference between Link state and Distance vector Algorithms.
(CO2) [Knowledge]
7. Explain Transition from IPV4 to IPV6?
(CO2) [Knowledge]
8. Explain MAC and ARP in short.
(CO3) [Knowledge]
9. What are the values of SNR and SNRdB for a noiseless channel ?
(CO4) [Knowledge]
10. We measure the performance of a telephone line (4 KHz of bandwidth). When the signal is 10 V, the noise is 5 mV. What is the maximum data rate supported by this telephone line?
(CO4) [Knowledge]

PART B

ANSWER ALL THE FIVE QUESTIONS

5 X 10 = 50M

11. List the protocols which uses sliding window concept for flow control and Explain with the help of flow diagram.
(CO1) [Comprehension]
12. Consider 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 binary notation to dotted-decimal notation.
a. 01111111 11110000 01100111 01111101
b. 10101111 11000000 11111000 00011101
c. 11011111 10110000 00011111 01011101
d. 11101111 11110111 11000111 00011101
e. 11111111 11111111 11111110 01111111
(CO2) [Comprehension]
14. Identify the primary protocol of network layer.Explain the header format for the latest version with neat diagram.
(CO3) [Comprehension]
15. What is an error?List and explain causes of transmission impairment in detail.
(CO4) [Comprehension]

PART C

ANSWER ALL THE TWO QUESTIONS

2 X 15 = 30M

16. 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?
(CO2) [Application]
17. The network is formed with 9 cities named as 0,1,2,3,4,5,6,7,8 with each city is connected to another city as follows:
City 0 is connected to city 1 with 4 KM and city 4 with 6 KM.
City 1 is connected to city 0 with 4 km, city 2 with 8 km, city 4 with distance of 11 km.
City 2 is connected to city 1 with 8 km, city 3 with 7 km, city 8 with 2 km and city 6 with 4 km.
City 3 is connected to city 2 with 7 km, city 6 with 14 km and city 7 with 9 km.
City 4 is connected to city 0 with 6 km, city 1 with 11 km, city 8 with 7 km and city 5 with 1 km.
City 5 is connected to city 4 with 1 km, city 8 with 6 km, city 6 with 2 km.
City 6 is connected to city 2 with 4 km, city 3 with 14 km, city 5 with 2 km and city 7 with 10 km.
City 7 is connected to city 3 with 9 km and city 6 with 10 km.
City 8 is connected to city 2 with 2 km, city 4 with 7 km and city 5 with 6 km.
Construct the network graph and find the shortest path using link state routing algorithm from city 7.
(CO3) [Application]
