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Bengaluru

Mid Term Examinations - October 2026

Date: 07/10/2026 **Time:** 09:30 AM - 11:00 AM

Course Code: CSS2251 **Course Name:** Data Communication and Computer Networks

Semester: Third Semester **Max. Marks:** 50 **Weightage:** 50%

CO - Levels	CO1	CO2
Marks	102	78

PART A: Answer Following Questions. 10 M

Q.N.	Questions	M	CO	BT
1	What is a network topology? Name any four types.	2	CO1	BT1
2	A noiseless channel has a **bandwidth of 3 kHz** and uses **4 signal levels**. Find the maximum data rate.	2	CO1	BT1
3	Differentiate between even parity and odd parity.	2	CO1	BT1
4	What is the **Stop-and-Wait protocol**?	2	CO2	BT1
5	Mention any two advantages of using CRC over parity checking.	2	CO2	BT1

PART B : Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
6	Explain the components of a computer network and discuss different network topologies with suitable diagrams.	10	CO1	BT2
7	Illustrate the TCP/IP protocol suite and describe the functions performed by each layer. Differentiate between the TCP/IP and OSI reference models.	10	CO1	BT2

PART C: Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
8	Explain multiplexing in detail. Discuss FDM, TDM and WDM with suitable diagrams and applications.	10	CO1	BT2
9	Discuss the different types of wireless transmission media and their characteristics, advantages, disadvantages, and applications.	10	CO1	BT2

PART D: Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
10	Explain how the Data Link Layer enables communication between a laptop and a Wi-Fi printer. Discuss the role of framing and MAC addressing.	10	CO2	BT2
11	Explain the parity-check method of error detection. Describe even and odd parity with suitable examples. For the following data, determine the parity bit and transmitted data using: a)Even parity: 1011011 b) Odd parity: 1100100 Also explain the limitations of the parity-check method.	10	CO2	BT3

PART E: Answer Any 1 Following Questions. 10 M				
Q.N.	**Questions**	**M**	**CO**	**BT**
12	Explain the working of CSMA/CA in wireless networks. Discuss carrier sensing, collision avoidance, ACK and backoff mechanisms	10	CO2	BT2
13	Describe the working of a CRC (Cyclic Redundancy Check) encoder and decoder with a neat diagram and suitable example.	10	CO2	BT2