QP Code: SN23BTECH200	Reg. No											AY 23

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur (GIET University)

B. Tech (Fifth Semester - Regular) Examinations, November 2025

23BCSPC35001/23BCDPC35001– Data Communications and Computer Networks

(CSE, CSE-DS)

Time: 3 hrs Maximum: 60 Marks

Answer ALL questions

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions		CO #	Blooms Level
a.	Find out total number of links required to make a network of 8 devices in mesh topology.	CO1	K2
b.	What is physical address in networking? How many bits are used for it?	CO2	K3
c.	Write down types of HDLC frame used in data link layer.	CO3	K1
d.	Write the class and default mask of following IP addresses. 95.190.65.43 and 221.48.160.24	CO4	K4
e.	How does reservation techniques work for multiple access?	CO5	K3

PART – B **(10 x 5 = 50 Marks)**

Answer ***ALL*** the questions		Marks	CO #	Blooms Level
2. a.	Discuss functions of Network Layer, Data Link Layer and Transport layer in OSI model of the network.	5	CO1	K1
b.	What is guided medium? How coaxial cable is used for transmission ?	5	CO1	K1
	(OR)			
c.	Draw TCP/IP model for networking .Explain the role of different types of network layer and transport layer protocols.	5	CO1	K2
d.	We have a channel with 1 MHz bandwidth. The SNR for this channel is 63. What are appropriate bit rate and signal level ?	5	CO1	K4
3.a.	Convert the given data byte 10011101 into digital signal by using RZ, NRZ-L, NRZ-I, and Manchester encoding techniques	8	CO2	K3
b.	Differentiate between serial and parallel data transmission.	2	CO2	K4
	(OR)			
c.	How analog signal can be converted to digital signal ?	5	CO2	K3
d.	Elaborate circuit switching in networking with diagram.	2	CO2	K1
4.a.	By using CRC method show that a data byte 11011010 is having no error at receiver end where where the divisor polynomial is x^3+x^2+1.	5	CO3	K4
b.	What is Go Back N ARQ protocol ? Why the size of sliding window is 2^m-1 in this protocol ?	5	CO3	K2
	(OR)			
c.	If sender sends data byte 10111011 but receiver gets data byte 11111011 then using Hamming code find out error position and correct the error.	5	CO3	K4
d.	Draw state transition diagram of PPP. Explain different steps of it.	5	CO3	K2
5.a.	Write both CSMA/CD and CSMA/CA algorithm for multiple access control.	5	CO4	K1
b.	Define Channelization? How TDMA and FDMA are used for it ?	5	CO4	K2

	(OR)			
c.	Is fragmentation required in IP Protocol? If yes then discuss different fields of IP packet header associated with it.	5	CO4	K4
d.	Find out network mask address, broadcast address, network address, first and last host address of the given IP address as 105.150.63.23/27	5	CO4	K3
6.a.	What are the features of TCP? Draw and explain its header format.	5	CO5	K2
b.	Explain quality of service of the network.	5	CO5	K1
	(OR)			
c.	Write short notes on HTTP.	5	CO5	K1
d.	What is Telnet? Explain its importance in internet.	5	CO5	K1

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