

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV(NEW) EXAMINATION – WINTER 2022****Subject Code:3143201****Date:14-12-2022****Subject Name:Data Communication & Computer Networks****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Describe Physical addresses, logical addresses and port addresses.	03
	(b) Differentiate circuit switched and packet switched network.	04
	(c) Write a note on OSI model and explain working of all layers.	07
Q.2	(a) An analog signal has a bit rate of 8000 bps and a baud rate of 2000 baud. How many data elements are carried by each signal element? How many signal elements do we need?	03
	(b) Define following terms: Attenuation, Distortion, Noise, Propagation delay	04
	(c) Enlist three digital to analog conversation methods. Write a note on any one of them.	07
OR		
	(c) Sender wants to send 0101100100 to the receiver. Draw the signal if the sender used following encoding techniques:	07
	<ul style="list-style-type: none"> • NRZ-L • NRZ-I • Manchester • Differential Manchester 	
Q.3	(a) Enlist ICMP error reporting messages and explain any one of them.	03
	(b) Count to Infinity problem exist in which routing protocol? Provide possible solutions to this problem.	04
	(c) Draw header structure of IPv4 and explain all the fields in detail.	07
OR		
Q.3	(a) Differentiate connection oriented and connection less services.	03
	(b) Discuss classful addressing scheme with its limitations.	04
	(c) Explain link state routing in detail.	07
Q.4	(a) Find out network address and broadcast address of the IP address 200.200.200.200 if the classful IP addressing scheme is used.	03
	(b) Sender wants to send 10011010 to the receiver. However, 10111101 has been received. Show how the receiver will detect the error using CRC scheme if the generator used is x^3+x^2+1 .	04
	(c) Explain Go Back N protocol in detail.	07
OR		
Q.4	(a) Explain any one controlled access protocol.	03
	(b) State whether the below statement is TRUE/FALSE? Justify your answer with proper explanation. Slotted aloha is better than pure aloha.	04
	(c) Write a note on High Level Data Link Control (HDLC).	07

- Q.5 (a)** Define following terms: **03**
- Message Confidentiality
 - Message Integrity
 - Message No-repudiation
- (b)** Explain how FTP works. **04**
- (c)** Describe functions and working of HTTP protocol in detail. **07**
- OR**
- Q.5 (a)** Describe working of simple network management protocol. **03**
- (b)** Draw the flowchart of CSMA/CD algorithm. **04**
- (c)** How confidentiality can be achieved with symmetric key encryption and asymmetric key encryption. Explain in detail. Also discuss advantages and limitations of both encryption techniques. **07**