

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER- VII EXAMINATION-SUMMER 2023****Subject Code: 2171008****Date: 26/06/2023****Subject Name: Data Communication and Networking****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) What are the three different transmission modes? Explain	03
	(b) (1) Differentiate between Physical address and Logical address (2) What is meant by piggybacking? What are its advantages and disadvantages?	04
	(c) What are the different types of framing? Explain bit stuffing with an example.	07
Q.2	(a) What is network topology? Explain the different network topologies.	03
	(b) Explain functioning of connection-oriented networks X.25 and frame relay in brief.	04
	(c) Explain the following CSMA protocols: (1) 1 persistent (2) Non persistent (3) P persistent	07
	OR	
	(c) Explain TCP/IP model with a diagram.	07
Q.3	(a) Explain the functions of modem in brief	03
	(b) Explain about Sliding Window protocols	04
	(c) Generate Hamming code for the data word 11100010. Assuming that there is an error in the 5 th bit from the left while transmitting then what procedure if carried out at the receiver end?	07
	OR	
Q.3	(a) What is an error? Explain the types of errors?	03
	(b) Explain 2-dimensional parity check for error detection.	04
	(c) Write short notes on Pure and slotted ALOHA.	07
Q.4	(a) What is Tunneling and Packet fragmentation?	03
	(b) Explain Network Address Translation with example	04
	(c) Discuss the transport service primitives. What do you understand by 3-way hand shake Technique?	07
	OR	
Q.4	(a) What is symmetric encryption and Asymmetric encryption?	03
	(b) Explain RSA algorithm	04
	(c) Explain the header format of the TCP and UDP in detail.	07
Q.5	(a) Explain the concept of Simple Mail Transfer Protocol	03
	(b) Explain the concept of WWW	04
	(c) What is a digital signature? Explain the process of Digital Signature.	07
	OR	
Q.5	(a) Explain DNS	03
	(b) Explain the concept of E-mail	04
	(c) What is a public key cryptography? Explain Public key cryptography principles	07
