

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2023****Subject Code:2171008****Date:08-12-2023****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

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|------------|--|-----------|
| Q.1 | (a) What is network? Briefly explain applications of computer network. | 03 |
| | (b) Why layered network model? Explain. | 04 |
| | (c) Draw and explain OSI reference model. | 07 |
| Q.2 | (a) Explain HDLC frame structure. | 03 |
| | (b) Compare circuit and packet switching. | 04 |
| | (c) Write short note on framing. | 07 |
| | OR | |
| | (c) Explain simplex protocol for noisy channel. | 07 |
| Q.3 | (a) Explain channel allocation issue. | 03 |
| | (b) Explain thin Ethernet in detail. | 04 |
| | (c) Explain sliding window with a size 1 and 3 bit sequence number | 07 |
| | OR | |
| Q.3 | (a) Explain Bluetooth in short. | 03 |
| | (b) What is hidden and exposed node issues? | 04 |
| | (c) Explain pure ALOHA in detail. | 07 |
| Q.4 | (a) What is UDP protocol? | 03 |
| | (b) Compare virtual circuit and datagram subnet. | 04 |
| | (c) Explain link state routing in detail. | 07 |
| | OR | |
| Q.4 | (a) Discuss network layer design issues. | 03 |
| | (b) Discuss transport layer services. | 04 |
| | (c) Explain ICMP protocol in detail. | 07 |
| Q.5 | (a) Write port number for following services.
1) HTTP 2) DNS 3) SMTP 4) SSH 5) POP3 6) Telnet | 03 |
| | (b) Explain electronic mail in brief. | 04 |
| | (c) Discuss DES algorithm in detail. | 07 |
| | OR | |
| Q.5 | (a) What is digital signature? | 03 |
| | (b) Explain Domain Name System. | 04 |
| | (c) Discuss RSA algorithm in detail. | 07 |
