

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI(NEW) EXAMINATION – WINTER 2022****Subject Code:3161007****Date:16-12-2022****Subject Name:Computer Networks****Time:02:30 PM TO 05:00 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) Compare ISO/OSI model vs. TCP/IP model. | 03 |
| | (b) Match the following: | 04 |
| | 1. Congestion a. Presentation layer | |
| | 2. Collision b. Network layer | |
| | 3. ISO c. MAC sub-layer | |
| | 4. Encryption d. Networking Model | |
| | e. Organization | |
| | (c) List out and explain various network topologies. | 07 |
| Q.2 | (a) Explain Point-to-Point and Multipoint connections / links with necessary diagrams. | 03 |
| | (b) Briefly explain types of addresses used at Host to Network Layer, IP Layer, Transport Layer and Application Layer of TCP/IP model. | 04 |
| | (c) Classify and explain Transmission Media. | 07 |
| | OR | |
| | (c) Classify and explain various Ethernet Technologies and Standards. | 07 |
| Q.3 | (a) Explain: Hop to Hop delivery, Source to Destination delivery and Process to Process delivery | 03 |
| | (b) Compare Circuit Switching vs. Packet Switching | 04 |
| | (c) What is Sliding Window Protocol? What do you mean by ARQ? Explain Selective repeat ARQ in detail. | 07 |
| | OR | |
| Q.3 | (a) What is Framing? Explain byte stuffing technique. | 03 |
| | (b) What are Error Detection and Error Correction? Explain any one method in detail. | 04 |
| | (c) What do you mean by Collision? Classify Multiple Access Protocols. Explain CSMA/CD protocol in detail. | 07 |
| Q.4 | (a) What do you mean by Congestion? Classify congestion control algorithms. | 03 |
| | (b) Write a short note on Bluetooth technology. | 04 |
| | (c) Explain Classful and Classless IPV4 addressing schemes with examples. | 07 |
| | OR | |
| Q.4 | (a) Draw neat sketch of connection establishment and connection termination used in TCP with necessary flags. | 03 |
| | (b) Explain Link State routing algorithm. | 04 |
| | (c) Draw and explain IPV4 datagram in detail. Also explain fragmentation. | 07 |

- Q.5** (a) Explain functioning of HTTP with supporting diagrams. **03**
(b) Write a short note on Electronic Mail. **04**
(c) Discuss functionality of ARP, RARP and ICMP. **07**

OR

- Q.5** (a) Compare TCP vs. UDP. **03**
(b) Explain functionality of Domain Name System (DNS). **04**
(c) What is Cryptography? Explain Substitution and Transposition Ciphers with examples. **07**
