

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V(NEW) EXAMINATION – SUMMER 2022****Subject Code:3150710****Date:09/06/2022****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) | What is the difference between a host and an end system?
List several different types of end systems. | 03 |
| | (b) | Explain IP Address, Physical Address and Port Number in Brief. | 04 |
| | (c) | Draw the layered architecture of OSI reference model and write at least two services provided by each layer of the model. | 07 |
| Q.2 | (a) | Explain the role of Domain Name Server (DNS) in Internet? | 03 |
| | (b) | Explain functionality of Repeater, HUB, Bridge, Switch, Router and Gateway. | 04 |
| | (c) | How end-to-end congestion control is provided by TCP. | 07 |
| | | OR | |
| | (c) | Consider the 7-bit generator, $G=10011$, and suppose that D has the value 1010101010 . What is the value of R ? | 07 |
| Q.3 | (a) | Discuss parity check for error detection in data transfer. | 03 |
| | (b) | List and briefly describe three types of switching fabrics used in Routers. Which, if any, can send multiple packets across the fabric in parallel? | 04 |
| | (c) | Describe Go Back N and Selective Repeat protocol. | 07 |
| | | OR | |
| Q.3 | (a) | Give difference between connection oriented and connection less services. | 03 |
| | (b) | Why do HTTP, FTP, SMTP, and POP3 run on top of TCP rather than on UDP? Name one application that uses UDP and why? | 04 |
| | (c) | Explain RDT 2.0. | 07 |
| Q.4 | (a) | Give difference between flow control verses Congestion Control. | 03 |
| | (b) | What is HTTP? Differentiate its persistent and non-persistent types with request-response behavior of HTTP. | 04 |
| | (c) | Explain distance vector routing algorithm. | 07 |
| | | OR | |
| Q.4 | (a) | Explain CSMA/CD Protocol. | 03 |
| | (b) | Why are different inter-AS and intra-AS protocols used in the Internet? | 04 |
| | (c) | Explain Link-State routing algorithm. | 07 |

- Q.5** (a) Explain in brief socket, multiplexing and demultiplexing. **03**
(b) How DHCP protocol works? **04**
(c) Explain TCP segment structure and justify the importance of its field values. **07**

OR

- Q.5** (a) Describe how a botnet can be created, and how it can be used for a DDoS attack. **03**
(b) What do you mean by random access protocols? Explain slotted ALOHA in brief. **04**
(c) Explain IPv4 datagram format and importance of each field **07**