

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2024**

**Subject Code:3150710**

**Date:21-05-2024**

**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.

	<b>MARKS</b>
<b>Q.1</b> (a) Define delay, loss, and throughput in the context of packet-switching networks.	<b>03</b>
(b) Differentiate persistent HTTP and non-persistent HTTP.	<b>04</b>
(c) Explain the functions of TCP/IP Protocol stack.	<b>07</b>
<b>Q.2</b> (a) Explain SMTP Protocol.	<b>03</b>
(b) Define following socket function call 1) Connect 2) Bind 3) Listen 4) Send	<b>04</b>
(c) Explain the purpose of DNS and its role in translating domain names into IP addresses.	<b>07</b>
<b>OR</b>	
(c) How does recursive queries in DNS work? Explain message format of DNS.	<b>07</b>
<b>Q.3</b> (a) What is multiplexing and demultiplexing in transport layer?	<b>03</b>
(b) What are the functions of transport layer in OSI reference model? How segmentation and reassemble is performed in transport layer?	<b>04</b>
(c) Differentiate Congestion Control, Flow control and Error Control.	<b>07</b>
<b>OR</b>	
<b>Q.3</b> (a) Enlist advantages of virtual circuit over datagram.	<b>03</b>
(b) Explain leaky bucket protocol for congestion control.	<b>04</b>
(c) Explain the various fields of TCP header What are the advantages and disadvantages of TCP.	<b>07</b>
<b>Q.4</b> (a) What is the use of class D and Class E in IPv4 addressing?	<b>03</b>
(b) Differentiate classful and classless addressing in IPv4.	<b>04</b>
(c) Explain link state routing protocol.	<b>07</b>
<b>OR</b>	
<b>Q.4</b> (a) Define Unicast, multicast and broadcast.	<b>03</b>
(b) Find the subnet mask value to create the following number of subnet in class A? a) 2      b) 5      c) 16      4) 63	<b>04</b>
(c) Explain distance vector routing protocol.	<b>07</b>
<b>Q.5</b> (a) Explain bit stuffing method with example.	<b>03</b>
(b) What is flow control? How does stop-n-wait protocol perform flow control?	<b>04</b>
(c) Explain Go-back N protocol? What is the limitation of it? How selective repeat protocol does overcome the limitation of Go back N protocol?	<b>07</b>

**OR**

- Q.5** (a) Define following types of assumptions in MAC sub layer. **03**  
a) Single channel 2) N Stations 3) Collision
- (b) How does two dimension parity check works for detecting error in data link layer? **04**
- (c) How does pure ALOHA and slotted ALOHA protocol work? **07**

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