Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV (New) EXAMINATION – WINTER 2015

Subject Code:2140709 Date:22/12/2015

Subject Name: COMPUTER NETWORKS

Time: 2:30pm to 5:00pm Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	What are the five layers in the Internet protocol stack? What are the principal responsibilities of each of these layers?	**06**
	(b)	Explain following terms: 1) Processing Delay 2) Transmission Delay 3) Propagation Delay	**06**
	(c)	What is botnet? Explain in brief	**02**
Q.2	**(a)**	What is HTTP? Differentiate its persistent and non-persistent types with request-response behavior of HTTP.	**06**
	(b)	Explain the concept of Cookies and its components with suitable example.	**08**
		OR	
	(b)	Explain the high-level view of Internet e-mail system and its major components.	**08**
Q.3	**(a)**	Discuss transport layer multiplexing and Demultiplexing concept.	**07**
	(b)	What is the main difference between forwarding and routing? Explain at least two forwarding techniques used by the router to switching to packets from input port to output port of the router.	**07**
		OR	
Q.3	**(a)**	Explain Connectionless Transport protocol UDP with popular Internet applications.	**07**
	(b)	Explain rdt2.0 with FSM diagram.	**07**
Q.4	**(a)**	Explain Link-State Routing algorithm	**06**
	(b)	What do you mean by random access protocols? Explain slotted ALOHA in brief	**04**
	(c)	Consider a router that interconnects three subnets: Subnet 1, Subnet 2, and Subnet 3. Suppose all of the interfaces in each of these three subnets are required to have the prefix 223.1.17/24. Also suppose that Subnet 1 is required to support at least 60 interfaces, Subnet 2 is to support at least 90 interfaces, and Subnet 3 is to support at least 12 interfaces. Provide three network addresses (of the form a.b.c.d/x) that satisfy these constraints.	**04**
		OR	
Q.4	**(a)**	Explain Distance-Vector Routing algorithm	**06**
	(b)	Explain CSMA/CD Protocol	**04**
	(c)	Suppose datagrams are limited to 1,500 bytes (including header) between source Host A and destination Host B. Assuming a 20-byte IP header, how many datagrams would be required to send an MP3 consisting of 5 million bytes? Explain how you computed your answer.	**04**

Q.5	**(a)**	Explain Ethernet Frame structure.	**07**
	(b)	Compare IPv4 and IPv6.	**07**

OR

Q.5	**(a)**	What is bit and byte stuffing? Explain with example.	**07**
	(b)	Explain the self-Learning properties of link layer switches.	**07**

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