NATIONAL INSTITUTE OF TECHNOLOGY, KURUKSHETRA

THEORY EXAMINATION (Re-Appear)
Question Paper

ROLL NO._____

Month and Year of the Examination: **Nov/Dec 2019**

Programme: **B.Tech. (Information technology)** ... Semester... **4th**....

Subject.....**Computer Network** Course No...**ITPC 26**.....

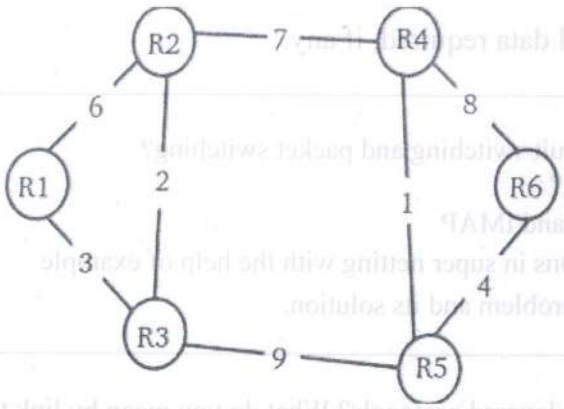
Maximum Marks...**50**.....

Number of Questions to be attempted...**5**... Time allowed ...**3 Hours**.....

Total No. of Questions.....**5**..... Total No. of Pages used...**2**....

Note: Assume suitably and state, additional data required, if any.

Ques1:	A. Differentiate between circuit switching and packet switching? B. What is hot potato routing? C. Difference between POP and IMAP D. Explain different restrictions in super netting with the help of example E. Explain count to infinity problem and its solution.	(2X5=10)
Ques2 (a)	What are the two reasons for using layered protocols? What do you mean by link to *link layers of OSI reference model? Explain their functions briefly?*	(5)
Ques2 (b)	A binary signal is sent over a 3-khz channel whose signal-to-noise ratio is 20 db. Calculate the maximum achievable data rate?	(2)
Ques2 (c)	Encode the following sequence of bits using NRZ and Manchester encoding and highlight advantage and disadvantage of each method 110100001111101	(3)
Ques3 (a)	Explain pure-ALOHA and slotted- ALOHA systems. Give the expression for throughout for each, clearly explaining the various terms. Explain 1-persistent, p-persistent and 0- persistent CSMA giving strong and weak points of each.	(5)
Ques3 (b)	Draw the IP datagram header format. "IP datagram has a checksum field still it is called an unreliable protocol". Justify?	(5)
Ques4 (a)	What is DNS ? Why it is required? When a dns server receives a request, What are possible actions it can take?	(4)

Ques 4 (b)	On a TCP connection, current congestion window size is Congestion Window = 4 KB. The window size advertised by the receiver is Advertise Window = 6 KB. The last byte sent by the sender is LastByteSent = 10240 and the last byte acknowledged by the receiver is LastByteAcked = 8192. Then find out current window size at the sender.	(3)
Ques 4 (c)	Explain leaky bucket and token bucket algorithm in detail.	(3)
Ques 5 (a)	Consider a network with 6 routers R1 to R6 connected with links having weights as shown in the following diagram:  All the routers use the distance vector based routing algorithm to update their routing tables. Each router starts with its routing table initialized to contain an entry for each neighbour with the weight of the respective connecting link. After all the routing tables stabilize, how many links in the network will never be used for carrying any data?	(5)
Ques 5(b)	Explain link state routing in detail.	(5)
	or	
Ques 5(a)	The original class C address was 194.17.68.1 and an ISP wants to divide this address in 4 subnets. What are range of addresses in each of the subnet	(3)
Ques 5(b)	Which of the following IP address can be used in WAN? 10.0.0.1,172.16.0.10,15.1.5.6	(2)
Ques 5(c)	Explain distance vector and hierarchical routing in detail.	(5)