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End Semester Examination

Max. Marks: 60 **Duration: 2 Hr**
Class: T.E. **Semester: VI**
Course Code: ET62 **Branch: Electronics and Telecommunication**
Name of the Course: Computer Communication Telecom Networks

Instruction:
(1) All questions Q1-Q4 are compulsory
(2) Q1 marking scheme is (1, -0.5)
(3) In Q1 is for 15 marks each correct question of 1 Mark and each wrong 0.5 mark is detected

Q No.		Max. Marks	CO
Q1	1)Router contains two hardware components, router processor and multiple network interfaces. Match the task done by these hardware components. Tasks i) execution of routing table ii) FIB lookup iii) maintenance of routing table iv) packet forwarded v) route calculation A. Router processor: iii,v,i; Network interface:ii,iv B. Router processor: iii,ii,i; Network interface:v,iv C. Router processor: ii,iv,i; Network interface:iii,v D. Router processor: iii,v,iv; Network interface:ii,i 2) What is the advantage of NAT A. Conserves the legally registered addresses B. Eliminates address renumbering as network changes C. Loss of end-to-end IP traceability D. Good network performance 3)Telephony, audio conferencing, video conferencing, and remote log-in need minimum delay. 2.Delay in file transfer or e-mail is more important. A. 1-True, 2- False B .1-True, 2- True C. 1-False, 2- False D. 1-False, 2- True	15	

4) what is wrong with Ring Topology

A. Point to multipoint connection

B. Easy to install and reconfigure

C.Each device in the ring incorporates a repeater

D.A signal is passed along the ring in two direction from device to device

5) Define the type of the following destination addresses:

1. 4A:30:10:21:1O:1A

2. 47:20:1B:2E:08:EE

3. FF:FF:FF:FF:FF:FF

A. 1- multicast, 2- unicast, 3-broadcast

B. 1-unicast, 2-multicast, 3-broadcast

C.1-unicast, 2- broadcast, 3- multicast

D. 1- broadcast, 2-multicast, 3- unicast

6) In Selective Repeat ARQ, the size of In the sender and receiver window must be at most---------

7) The physical addresses will change from hop to hop, but the logical addresses usually remain the same.

A. TRUE

B. FALSE

8) -------- bits are there in the Ethernet address?

9) What are the flow characteristics of QoS of Internet

A. Delay
B. Reliability
C. Jitter
D. Integrity

10) Which of the following are true about SDN Controller?

A. Manages flow control to the switches/routers 'below' (via southbound APIs)

B. It is used to collect information about networking devices using SNMP.

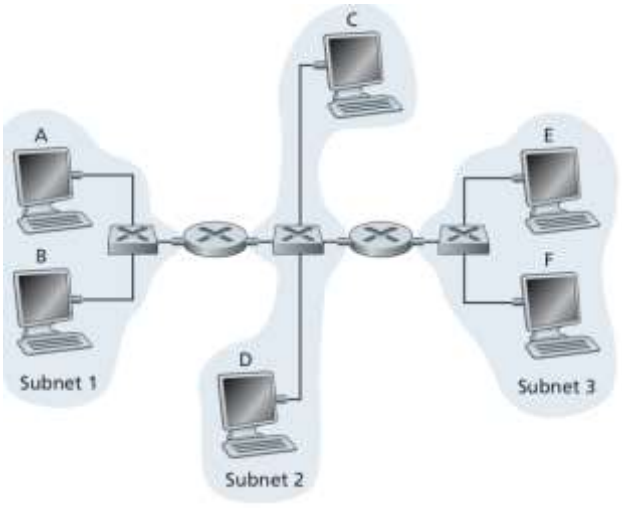
C. OpenFlow is used to communicate with the networking devices via southbound APIs

D. Manages applications and business logic 'above' (via northbound APIs) to deploy intelligent networks.

11) List three benefits of NFV compared to traditional network devices

A. hardware-centric
B. deployment agility
C. elasticity

	D. vendor independence 12) The number of addresses in the block can be found by using the formula --------- 13**)** Active Engagement Features of IOT means? A. Security B. It makes the complete failure of the system. C. IoT makes things smart and enhances life through the use of data. D.IoT makes the connected technology, product, or services to active engagement between each other 14) The performance parameters of networks are A. Delay B. Load C. Throughput D. Bandwidth 15) The primary goal of the …… protocol is to provide a private channel between communicating application, which ensures privacy of data authentication of the partners, and integrity. A. SSL B. ESP C. TSL D. PSL		
Q.2 (a)	Suppose two hosts, A and B, are separated by 30,000 kilometers and are connected by a direct link of R = 2 Mbps. Suppose the propagation speed over the link is 2.5×10^8 meters/sec. a) Calculate the bandwidth-delay product, R. d_{prop}. b) Consider sending a file of 700,000 bits from Host A to Host B. Suppose the file is sent continuously as one large message. What is the maximum number of bits that will be in the link at any given time? OR Consider an application that transmits data at a steady rate (for example, the sender generates an N-bit unit of data every k time units, where k is small and fixed). Also, when such an application starts, it will continue running for a relatively long period of time. Answer the following questions, briefly justifying your answer: a) Would a packet-switched network or a circuit-switched network be more appropriate for this application? Why? b) Suppose that a packet-switched network is used and the only traffic in this network comes from such applications as described above. Furthermore, assume that the sum of the application data rates is less than the capacities of each and every link. Is some form of congestion control needed? Why?	5	CO1

(b)	i)Why do we need a DNS system when we can directly use an IP address? ii) A domain name is hello. customer. info. Is this a generic domain or a country domain? Why?	3+2=5	CO2
(c)	i) Justify that TCP is connection oriented protocol ii)Why is a connection establishment for mail transfer needed if TCP has already established a connection?	3+2=5	CO2
Q3(a)	Consider Figure 3.1 Now we replace the router between subnets 1 and 2 with a switch S1, and label the router between subnets 2 and 3 as R1.  i)Consider sending an IP datagram from Host E to Host F. Will Host E ask router R1 to help forward the datagram? Why? In the Ethernet frame containing the IP datagram, what are the source and destination IP and MAC addresses?	2	CO4
	In an IPv4 datagram, the M bit is 0, the value of HLEN is 5, the value of total length is 200, and the offset value is 200. What is the number of the first byte and number of the last byte in this datagram? Is this the last fragment, the first fragment, or a middle fragment?	3	CO4
(b)	Compare and analyze the merits of link state routing algorithm over distance vector algorithm	5	CO4
(c)	Justify that BGP is exterior protocol	5	CO4
Q4(a)	justify the following question w.r.t. IPv4 datagram. i. Which fields of the IPv4 header change from router to router? ii. If the first field is 011 is the packet accepted or discarded? why iii. The value of HLEN in an IPv4 datagram is 6. How many option bytes are present? iv. An IPv4 datagram arrives with fragmentation offset of 0 and an M bit (more fragment bit) of 0. Is this a first fragment, middle fragment, or last fragment?	5	CO3

	v. Given a fragmented datagram (in IPv4) with an offset of 150, how can you determine the first and last byte numbers?		
(b)	Identify and compare the traffic shaping in the following scenario. i)People have office timing of 9am to 5pm.The huge load of peoples at the same time for train to reach office in time. Very few people reach to office in time. If everybody need to reach to office in time without facing much crowed in train what the traffic shaping mechanism that will solve the problem. OR The following is a dump of a UDP header in hexadecimal format. 0632000B001EE217 a. What is the destination port number? b. What is the source port number? c. What is the total length of the user datagram? d. What is the length of the data? e. What is the client process?	5	CO3
(c)	An ISP is granted a block of addresses starting with 120.60.4.0/22. The ISP wants to distribute these blocks to 100 organizations with each organization receiving just eight addresses. Design the subblocks and give the slash notation for each subblock. Find out how many addresses are still available after these allocations	5	CO3