Dayananda Sagar College of Engineering

Shavige Malleshwara Hills, Kumaraswamy Layout, Banashankari, Bangalore-560078, Karnataka
Tel : +91 80 26662226 26661104 Extn : 2731 Fax : +90 80 2666 0789
Web - http://www.dayanandasagar.edu   Email : hod-ece@dayanandasagar.edu
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(Accredited by National Assessment & Accreditation Council (NAAC) with 'A' grade)

Department of Electronics & Communication Engg.
Continuous Internal Evaluation – II

Course Name : Computer Communication Networks		Date :	09/07/2021
Course Code : 18EC6DCCCN		Day :	Friday
Semester : VI		Timings :	3:00PM-4:30PM
Max Marks : 50 M		Duration :	1½ Hrs.

No.		Question Description	Mks	CO & Levels
Q1	(a)	A client uses UDP to send data to a server. The data are 16 bytes. Calculate the efficiency of this transmission at the UDP level (i) 0.666 (ii) 0.500 (iii) 0.333 (iv) None of the above	1	
	(b)	A Packet has arrived with an M bit value of one, Packet can be _____ (i) First Packet. (ii) Middle Packet. (iii) Last Packet. (iv) Both (i) and (ii)	1	
	(c)	An address space uses the three symbols 0, 1, and 2 to represent addresses. If each address is made of 10 symbols, how many addresses are available in this system? (i) 3000 (ii) 1024 (iii) 5039 (iv) 59049	1	
	(d)	The size of the option field of an IPv4 datagram is 20 bytes. What is the value of HLEN? (i) 10 (ii) 5 (iii) 8 (iv) 12	1	
	(e)	A client uses TCP to send data to a server. The data are 16 bytes. Calculate the efficiency of this transmission at the TCP level. (i) 0.33 (ii) 0.44 (iii) 0.66 (iv) 0.50	1	
	(f)	What is the maximum size of the process data that can be encapsulated in a UDP datagram? (i) 65535 (ii) 65528 (iii) 65507 (iv) None of the above	1	
	(g)	A router receives a datagram with D bit has 1, it finds it cannot transmit the datagram because the total length is more than what the underlaying network can carry, which message it sends to the transmitter.? (i)ARP (ii)ICMP (iii)IGMP	1	

		(iv)SNM		
	(h)	Find the Net ID and the Host ID of the 132.56.8.6 IP addresses. (i) 132, 56.8.6 (ii) 132.56, 8.6 (iii)132.56.8,6 (iv) None of the above	1	
	(i)	Total address space required is a Billion, minimum number of bits required is (i) 10 bits (ii) 8 bits (iii) 20 bits (iv) 30 bits	1	
	(j)	Class C address contains _____ percentage of total address. (i) 50% (ii) 25% (iii) 12.5% (iv) 8 %	1	
Q2		An ISP is granted a block of addresses starting with 150.80.0.0/16. The ISP wants to divide the blocks to customers as follows. Determine the following, (i) The first group has 256 medium-size businesses; each need 128 addresses. (ii) The second group has 512 small businesses; each need 16 addresses. (iii)The third group has 2048 households; each need 4 addresses. (iv) How many addresses are still available after these allocations? (v) The address of the 200th customer in the first block, and 400th customer in the 2nd block. Design the subblocks and give the slash /n notation for each subblocks.	10	CO3/L 4
Q3		Distinguish between the TCP and the UDP headers. List the fields in the TCP header that are missing from UDP header. Give detailed reason for their absence.	10	C02/L 4
Q4	(a)	The Network layer of Router-1 receives 4100 Bytes of data, it finds the link to Router-2 can carry maximum of 1400 bytes, it fragments the packets to F1, F2, and F3. Router 2 transmits F1, F3 without modifying to Router-3, However F2 is transmitted to Router-3, this link can carry maximum of 800bytes, hence F2 is fragmented as F2.1 and F2.2. For all the Fragmented datagrams. Determine, (i) Total length of IPv4 datagram. (ii) Flag bits. (iii) Fragmentation Offset. (iv) Bytes carried by each datagram. **(Assume there are no options in the Datagrams)**	10	CO3/L 2
		OR		
Q5	(a)	An IPv4 datagram has arrived with the following information in the header (in Hexadecimal format): Ox45 00 00 54 00 03 58 50 20 06 00 00 7C 4E 03 02 B4 OE OF 02 Determine, (i) Source and Destination address. (ii) Are there any options? (iii) Is the packet fragmented? (iv) What is the size of the data? (v) How many more routers can the packet travel to? (vi) What is the identification number of the packet? (vii) What is the type of service?	7	CO3/L 3
	(b)	In a block of addresses, we know the IP address of one host is 182.44.82.16/26. Identify the first IP address (network address) and the last IP address in this block.	3	CO3/L 3
Q6	(a)	The following is a dump of a TCP header in hexadecimal format. 05320017 00000001 00000000 500207FF 00000000	7	CO3/L 4

		(i) What is the source port number? (ii) What is the destination port number? (iii) What the sequence number? (iv) What is the acknowledgment number? (v) What is the length of the header? (vi) What is the type of the segment? (vii) What is the window size?		
	(b)	What can you say about the TCP segment in which the value of the control field is one of the following? (i) 000000 (ii) 000001 (iii) 010001	3	
		OR		
Q7	(a)	A network has got the following topography: (i) Cost between node A and B is 2. (ii) Cost between A and D is 3. (iii) Cost between D and E is 5. (iv) Cost between B and E 4. (v) Cost between B and C is 5. (vi) Cost between E and F is 2 (vii) Cost between C and F is 4. (viii) Cost between F and G is 1. (ix) Cost between C and G is 3. Construct the network determine the initial Distance Vector for each of the Node, make changes in the distance vector of B after it receives a Copy of A's, Vector and E's Vector.	10	CO3/L4