

Name:	 UPES UNIVERSITY WITH A PURPOSE
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Exam, July 2020

Course: Data Communication and Computer Networks

Program: B.Tech (CSE + OGI)

Course Code: CSEG2009

Mode: Online (Blackboard)

Instructions: All questions are compulsory

Semester: IV

Time 02 hrs.

Max. Marks: 100

Total Question: 60

S. No.		Marks	
1	Two broad categories of congestion control are i. Active loop and Passive loop ii. Active control and Passive control iii. Open-loop and Closed-loop iv. Open-control and Closed-control	1	CO5
2	Retransmission of packets must not be done when _____ i. Packet is lost ii. Packet is corrupted iii. Packet is needed iv. Packet is error-free	1	CO3
3	One of the address in a block is 17.63.110.114 / 20. Find the number of address i. 128 ii. 132 iii. 120 iv. 64	2	CO4
4	If the IP address of the system is 193.116.86.44 & subnet mask is 255.255.255.52. Calculate 1st host of the last subnet. i. 193.116.86.59 ii. 193.116.86.52 iii. 193.116.86.64 iv. 193.116.86.49	3	CO4
5	In the slow-start algorithm, the size of the congestion window increases _____ until it reaches a threshold. i. multiplicatively ii. additively iii. Exponentially iv. Suddenly	1	CO3
6	Which of the following are transport layer protocols used in networking? i. TCP and UDP	1	CO5

	<ul style="list-style-type: none"> ii. HTTP and FTP1 iii. UDP and HTTP iv. TCP and FTP 		
7	<p>Transport layer protocols deals with _____</p> <ul style="list-style-type: none"> i. node to node communication ii. man to man communication iii. process to process communication iv. application to application communication 	1	CO3, CO6
8	<p>Let the size of congestion window of a TCP connection be 32 KB when a timeout occurs. The round trip time of the connection is 100 msec and the maximum segment size used is 2 KB. The time taken (in msec) by the TCP connection to get back to 32 KB congestion window is _____.</p> <ul style="list-style-type: none"> i. 1100 to 1300 ii. 1500 to 1700 iii. 800 to 1000 iv. 1400 to 1600 	3	CO5
9	<p>Which of the following statements are TRUE?(S1) TCP handles both congestion and flow control (S2) UDP handles congestion but not flow control (S3) Fast retransmit deals with congestion but not flow control (S4) Slow start mechanism deals with both congestion and flow control</p> <ul style="list-style-type: none"> i. S1, S3 and S4 only ii. S3 and S4 only iii. S1, S2 and S3 only iv. S1 and S3 only 	2	CO5
10	<p>Match the following IEEE No to their corresponding Name for IEEE 802 standards for LANs.</p> <ul style="list-style-type: none"> i) 802.3 a) WiFi ii) 802.11 b) WiMa iii) 802.15.1 c) Ethernet iv) 802.16 d) Bluetooth <ul style="list-style-type: none"> i. "i-b, ii-c, iii-d, iv-a" ii. "i-c, ii-d, iii-a, iv-b" iii. "i-c, ii-a, iii-d, iv-b" iv. "i-b, ii-d, iii-c, iv-a" 	2	CO3, CO6
11	<p>Which of the following IP address can be used in WAN?</p> <ul style="list-style-type: none"> i. 15.1.5.6 ii. 172.16.0.10 iii. 10.0.0.1 	2	CO3

	iv. None		
12	<p>If a class B network on the Internet has a subnet mask of 255.255.248.0, what is the maximum number of hosts per subnet?</p> <ul style="list-style-type: none"> i. 2047 ii. 1023 iii. 2046 iv. 1022 	2	CO4
13	<p>To test the IP stack on your local host, which IP address would you ping?</p> <ul style="list-style-type: none"> i. 127.0.0.255 ii. 127.0.0.1 iii. 1.0.0.127 iv. 127.0.0.0 	2	CO4
14	<p>In the IPv4 addressing format, the number of networks allowed under Class C addresses is</p> <ul style="list-style-type: none"> i. 2^7 ii. 2^{24} iii. 2^{21} iv. 2^{14} 	2	CO4, CO6
15	<p>What is the maximum number of IP addresses that can be assigned to hosts on a local subnet that uses the 255.255.255.224 subnet mask?</p> <ul style="list-style-type: none"> i. 10 ii. 30 iii. 20 iv. 40 	2	CO4
16	<p>Which of the following is reliable communication?</p> <ul style="list-style-type: none"> i. UDP ii. IP iii. TCP iv. All of them 	1	CO5
17	<p>The class-based addressing is also known as</p> <ul style="list-style-type: none"> i. Classful Model ii. Modern Model iii. Classless Model iv. Heterogeneous Model 	1	CO3
18	Match the correct answer.	2	CO5

	<p style="text-align: center;">List - I</p> <p>(a) Data link layer (b) Network layer (c) Transport layer (d) Presentation layer</p> <p style="text-align: center;">List - II</p> <p>(i) Encryption (ii) Connection control (iii) Routing (iv) Framing</p> <p>Code :</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td>(a)</td> <td>(b)</td> <td>(c)</td> <td>(d)</td> </tr> <tr> <td>(1)</td> <td>(iv)</td> <td>(iii)</td> <td>(i)</td> <td>(ii)</td> </tr> <tr> <td>(2)</td> <td>(iii)</td> <td>(iv)</td> <td>(ii)</td> <td>(i)</td> </tr> <tr> <td>(3)</td> <td>(iv)</td> <td>(ii)</td> <td>(iii)</td> <td>(i)</td> </tr> <tr> <td>(4)</td> <td>(iv)</td> <td>(iii)</td> <td>(ii)</td> <td>(i)</td> </tr> </table> <p>A (1) B (2) C (3) D (4)</p>		(a)	(b)	(c)	(d)	(1)	(iv)	(iii)	(i)	(ii)	(2)	(iii)	(iv)	(ii)	(i)	(3)	(iv)	(ii)	(iii)	(i)	(4)	(iv)	(iii)	(ii)	(i)		
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(1)	(iv)	(iii)	(i)	(ii)																								
(2)	(iii)	(iv)	(ii)	(i)																								
(3)	(iv)	(ii)	(iii)	(i)																								
(4)	(iv)	(iii)	(ii)	(i)																								
19	<p>What is the size of Source and Destination IP address in IP header?</p> <p>i. 32 bits ii. 16 bits iii. 8 bits iv. 4 bits</p>	1.5	CO2																									
20	<p>What does the port number in a TCP connection specify?</p> <p>i. It specifies the communication process on the two end systems ii. It specifies the quality of the data & connection iii. It specify the size of data iv. All of the above</p>	1	CO5																									
21	<p>Which of the following is correct in CIDR?</p> <p>i. There are only two networks ii. There are high & low class network iii. There is no concept of class A, B, C networks iv. Class A includes Class B network</p>	1	CO3																									
22	<p>What is the natural mask for a class C Network?</p> <p>i. 255.255.255.1 ii. 255.255.255.255 iii. 255.255.255.254 iv. 255.255.255.0</p>	1.5	CO4																									

23	<p>Routing tables of a router keeps track of</p> <ul style="list-style-type: none"> i. Routes to use for forwarding data to its destination ii. Distribute IP address to network devices iii. Port Assignments to network devices iv. MAC Address Assignments 	1.5	CO5
24	<p>In GoBack N ARQ if sequence bits are taken as 6, then what is the sender window size and receiver window size.</p> <ul style="list-style-type: none"> i. S=63, R= 1 ii. S=63, R= 6 iii. S=64, R= 6 iv. S=64, R= 1 	2	CO3
25	<p>What is the usable size of Network bits in Class B of IP address?</p> <ul style="list-style-type: none"> i. 16 ii. 14 iii. 8 iv. 4 	1.5	CO4
26	<p>What is the first address of a block of classless addresses if one of the addresses is 12.2.2.76/27?</p> <ul style="list-style-type: none"> i. 12.2.2.0 ii. 12.2.2.32 iii. 12.2.2.64 iv. None 	3	CO4
27	<p>In a Go-Back-N ARQ, if the window size is 63, what is the range of sequence numbers?</p> <ul style="list-style-type: none"> i. 1 to 64 ii. 1 to 63 iii. 0 to 64 iv. 0 to 63 	2	CO3
28	<p>Bridging occurs at _____ layer of the OSI reference model, whereas routing occurs at _____ layer.</p> <ul style="list-style-type: none"> i. Transport Layer, Network Layer ii. Data Link Layer, Network layer iii. Network Layer, Data Link Layer iv. Application Layer, Network Layer 	1	CO5
29	<p>What are the basic activities of route information management?</p> <ul style="list-style-type: none"> i. Route Storage ii. Route Selection iii. Route Advertisement iv. All of the above 	1	CO5

30	<p>Which one is not a characteristics of BGP?</p> <ul style="list-style-type: none"> i. Support for CIDR ii. Runs over TCP iii. Path information None of the above 	1	CO5
31	<p>The name of the transmission media delivers the utmost transmission speed in a network?</p> <ul style="list-style-type: none"> i. twisted pair cable ii. optical fiber iii. coaxial cable iv. fiber electrical cable 	1	CO1
32	<p>There are bi-directional links between each possible node. Which network topology is used for it?</p> <p>A) Ring B) Star C) Tree D) Mesh</p>	1	CO1
33	<p>Consider a network, if the signal's bandwidth is 7 KHz and the lowest frequency is 61 HHZ, Find out the highest frequency?</p> <p>A. 68 KHz B. 54 KHz C. 50 KHz D. 61 KHz</p>	2	CO1
34	<p>How many bits are required for addressing the Gigabit Ethernet.</p> <ul style="list-style-type: none"> i. 128 ii. 64 iii. 48 iv. 32 	1.5	CO2
35	<p>A communication channel concerned by additive white, Gaussian noise has a bandwidth of 6 kHz and SNR of 7. The highest transmission rate that this channel can support (in k bits/sec) is</p> <ul style="list-style-type: none"> i. 18000 ii. 1.800 iii. 3.600 iv. 80000 	3	CO2
36	<p>Which propagation is used if the Signals with a frequency lower than 2 MHz</p> <ul style="list-style-type: none"> i. line-of-sight 	1	CO3

	<ul style="list-style-type: none"> ii. sky iii. ground iv. none of the above 		
37	<p>A limited telephone network is an example of which network?</p> <ul style="list-style-type: none"> i. Packet switched ii. Circuit switched iii. Bit switched iv. Line switched 	1	CO3
38	<p>Which one of the following statements is FALSE?</p> <ul style="list-style-type: none"> i. Packet switching leads to better utilization of bandwidth resources than circuit switching. ii. Packet switching results in less variation in delay than circuit switching. iii. Packet switching requires more per packet processing than circuit switching iv. Packet switching can lead to reordering unlike in circuit switching 	2	CO5
39	<p>Assume that we need to download text documents at the rate of 100 pages per minute. A page is an average of 24 lines with 80 characters in each line and each character requires 8 bits. Then the required bit rate of the channel is</p> <ul style="list-style-type: none"> i. 1.636 Kbps ii. 1.636 Mbps iii. 2.272 Mbps iv. None of the above 	3	CO2
40	<p>A slotted ALOHA network transmits 200 bits frames using a shared channel with 200 kbps bandwidth. If the system (all stations put together) produces 1000 frames per second, then the throughput of the system is</p> <ul style="list-style-type: none"> i. 0.268 ii. 0.468 iii. 0.368 iv. 0.568 	3	CO1
41	<p>A pure ALOHA Network transmit 200 bit frames using a shared channel with 200 Kbps bandwidth. If the system (all stations put together) produces 500 frames per second, then the throughput of the system is</p> <ul style="list-style-type: none"> i. 0.384 	3	CO1

	ii. 0.184 iii. 0.286 iv. 0.586		
42	Consider the following message $M = 1010001101$. The cyclic redundancy check (CRC) for this message using the divisor polynomial $x^5 + x^4 + x^2 + 1$ is : i. 01110 ii. 01011 iii. 10101 iv. 10110	2	CO2
43	. A computer network uses polynomial over GF(2) for error checking with 8 bits as information bits and uses $x^3 + x + 1$ as the generator polynomial to generate the check bits. In this network, the message 01011011 is transmitted as i. 01011011010 ii. 01011011011 iii. 01011011101 iv. 01011011100	2	CO2
44	The Hamming distance between 100 and 001 is _____. i. 2 ii. 0 iii. 1 iv. none of the above	1.5	CO6
45	The checksum of 1111 and 1111 is _____. i. 1111 ii. 0000 iii. 1110 iv. 0111	2	CO3, CO1
46	Stop-and-wait ARQ is used for _____? i. Flow Control	1	CO3

	<ul style="list-style-type: none"> ii. Error Control iii. Session management iv. Line discipline 		
47	<p>Which ARQ mechanism deals with the transmission of only damaged or lost frames despite the other multiple frames by increasing the efficiency & its utility in noisy channels?</p> <ul style="list-style-type: none"> i. Go-Back-N ARQ ii. Selective Repeat ARQ iii. Stop-and-Wait ARQ iv. d. All of the above 	1	CO3
48	<p>When Useful bandwidth of medium exceeds the required bandwidth of signals to be transmitted we use</p> <ul style="list-style-type: none"> i. Time division multiplexing ii. Code division multiplexing iii. Frequency division multiplexing iv. None of the above 	1	CO3
49	<p>In Go-Back-N ARQ, if 5 is the number of bits for the sequence number, then the maximum size of the receive window must be _____.</p> <ul style="list-style-type: none"> i. 1 ii. 15 iii. 16 iv. 31 	1.5	CO6
50	<p>In Selective Repeat ARQ, if 5 is the number of bits for the sequence number, then the maximum size of the send window must be _____.</p> <ul style="list-style-type: none"> i. 1 ii. 15 iii. 16 iv. 31 	1.5	CO6
51	<p>A bit-stuffing based framing protocol uses an 8-bit delimiter pattern of 01111110. If the output bit-string after stuffing is 01111100101, then the input bit-string is</p> <ul style="list-style-type: none"> i. A 0111110100 	2	CO6

	<ul style="list-style-type: none"> ii. B 0111110101 iii. C 0111111101 iv. D 0111111111 		
52	<p>In, each packet of a message follows the same path from sender to receiver.</p> <ul style="list-style-type: none"> i. circuit switching ii. message switching iii. virtual approach to packet switching iv. datagram approach to packet switching 	1	CO4
53	<p>A 2 km long broadcast LAN has 107 bps bandwidth and uses CSMA/CD. The signal travels along the wire at 2×10^8 m/s. What is the minimum packet size that can be used on this network?</p> <ul style="list-style-type: none"> i. 50 bytes ii. 100 bytes iii. 200 bytes iv. None of these 	3	CO6
54	<p>Which of the following statements is TRUE about CSMA/CD</p> <ul style="list-style-type: none"> i. IEEE 802.11 wireless LAN runs CSMA/CD protocol ii. Ethernet is not based on CSMA/CD protocol iii. CSMA/CD is not suitable for a high propagation delay network like satellite network iv. There is no contention in a CSMA/CD network 	1.5	CO6
55	<p>Which of the following statement is False about the efficiency of the given channel?</p> <ul style="list-style-type: none"> i. If we want to send big packets on the channel, then Stop and Wait is good choice. ii. If length of packet increases, efficiency of channel also increases. iii. Distance between sender and receiver is directly proportional to efficiency of channel. iv. Efficient might be less if capacity of channel is high. 	1.5	CO5

56	<p>In a fast Ethernet cabling, 100 Base-TX uses ____ cable and maximum segment size is ____.</p> <ul style="list-style-type: none"> i. twisted pair, 100 metres ii. twisted pair, 200 metres iii. fibre optics, 1000 metres iv. fibre optics, 2000 metres 	1.5	CO6
57	<p>In a fully-connected mesh network with 10 computers, total _____ number of cables are required and _____ number of ports are required for each device.</p> <ul style="list-style-type: none"> i. 40,9 ii. 45,10 iii. 45,9 iv. 50,10 	2	CO6
58	<p>How many check bits are required for 16 bit data word to detect 2 bit errors and single bit correction using hamming code?</p> <ul style="list-style-type: none"> i. 5 ii. 6 iii. 7 iv. 8 	1.5	CO6
59	<p>The address resolution protocol (ARP) is used for</p> <ul style="list-style-type: none"> i. Finding the IP address from the DNS ii. Finding the IP address of the default gateway iii. Finding the IP address that corresponds to a MAC address iv. Finding the MAC address that corresponds to an IP address 	1	CO5
60	<p>"Transmission of data in Physical, Data link, network and transport layer in the form of (respectively). "</p> <ul style="list-style-type: none"> i. "Frames, Packets, Bits, and Segments" ii. " Packets, Bits, Frames, and Segments" iii. "Packets, Frames, Segments, and Bits" iv. "Bits, Frames, Packets, and Segments" 	1	CO6