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

Course: Data Communication & Computer Networks **Semester: IV**
Program: B. Tech CSE (All Specializations) **Time: 02 hrs.**
Course Code: CSEG 2009, CSEG226 **Max. Marks: 100**
Instructions:

Question Type	Question Statement	Option 1	Correct/ Incorrect	Option 2	Correct/ Incorrect	Option 3	Correct/ Incorrect	Option 4	Correct/ Incorrect	Marks
MC	In context to jitter, pick the odd one out.	Variation in packet arrival time	Incorrect	This delay is evenly distributed	Correct	Jitter plays vital role in effectiveness of computer network	Incorrect	All of these are related to jitter	Incorrect	1
MC	Which of these are part of the five components that a computer networks primarily has?	Protocol	Correct	Sender	Correct	Server	Incorrect	Router	Incorrect	1
MC	Which is NOT part of fundamental characteristics of data communication?	Delivery	incorrect	Accuracy	incorrect	Timeliness	incorrect	Efficiency	correct	1
MC	I and my friend were talking over a communication network but we were facing a issue which was when I was	Simplex	Incorrect	Full Duplex	Incorrect	Duplex	Incorrect	Half Duplex	Corect	1

	talking, I was not able to hear and when I was hearing, I was not able to talk. What type of data flow was happening between us?									
MC	How many duplex mode links will be there in a mesh topology with 10 nodes?	20	Incorrect	45	Correct	10	Incorrect	40	Incorrect	3
TF	A Request for Comment is an idea that has achieved status of an Internet Standard.	FALSE								1
MC	A bridge uses IP addresses while a router uses MAC addresses	FALSE								1
MC	Which of the models is more dominant, tested and extensively used.	OSI	Incorrect	TCP/IP	Correct	Both OSI & TCP/IP have their own relevance and applicability	Incorrect	None of these	Incorrect	1
MC	The time takes for an entire message to completely arrive at the destination from the time the first bit is sent out	Propagation time	Incorrect	Transmission time	Correct	Processing delay	Incorrect	Latency	Correct	1

	from the source is called									
MC	Data of FTP client is delivered to a FTP Server by which layer?	Application Layer	Incorrect	Datalink Later	Incorrect	Network Layer	Incorrect	Transport layer	Correct	1
MC	If period of a signal is 200 ms. What is the frequency of signal?	5 Hz	Correct	10^-3 KHz	Incorrect	10 Hz	Incorrect	10^-2 Kh	Incorrect	1
MC	What is the transmission time of a packet sent by a station if the length of the packet is 1 million bytes and the bandwidth of the channel is 200 Kbps?	25 ms	Incorrect	40 ms	Incorrect	40 s	Correct	25s	Incorrect	1
MC	A router modifies the IP packets during forwarding.	TRUE	correct	FALSE	incorrect					1
MC	A periodic signal has a bandwidth of 20 Hz. The highest frequency is 60 Hz. What is the lowest frequency?	20 Hz	incorrect	40 Hz	correct	60 Hz	incorrect	80 Hz	incorrect	5
MC	The multiplexing approach usually used for	Frequency Division Multiplexi	Incorrect	Wavelength Division Multiplexing	Incorrect	Time Division Multiplexing	Correct	Code Division Multiplexing	Incorrect	1

	multiplexing digital signals is:	ng								
TF	Coaxial cable can carry signals of higher frequency as compared to twisted pair cable.	FALSE								1
MC	Pick the odd one out	Radio wave	Incorrect	Microwave	Incorrect	Infrared	Incorrect	Optical Fiber	Correct	1
TF	Microwaves are unidirectional and work in line of sight of the antenna.	TRUE								1
MC	Which of these require end to end addressing but no addressing during data transfer phase?	Circuit Switched Network	Correct	Datagram Network	Incorrect	Virtual Circuit Network	Incorrect	All of these	Incorrect	1
MC	How many transmission delays will be introduced in a datagram network?	1 Transmission Delay	Incorrect	3 Transmission Delay	Correct	2 Transmission Delay	Incorrect	No transmission delay	Incorrect	3
MC	The power of a signal is 10 mW and the power of the noise is 1 microwatt; what are the values of SNR and SNRdB?	SNR = 10000, SNRdB=40	correct	SNR = 40, SNRdB =10000	incorrect	SNR = 40000, SNRdB =10	incorrect	SNR = 40000, SNRdB =100	incorrect	1

MC	A digitized voice channel is made by digitizing a 4 kHz bandwidth analog voice signal. We need to sample the signal at twice the highest frequency (two samples per hertz). We assume that each sample requires 8 bits. What is the required bit rate	64000 kbps	incorrect	60000 kbps	incorrect	64 kbps	correct	60 kbps	incorrect	1
MC	Which is incorrect in context to a VCI?	Used between two switches	Incorrect	The outgoing VCI number is same as the incoming VCI number, to enable identification of sender.	Correct	It is not a global address	Incorrect	VCI stands for Virtual-Circuit Identifier	Incorrect	1
MC	What is the number of parity bits added for coding 32 message bits?	4	Incorrect	5	Incorrect	6	Correct	16	Incorrect	1
MC	The Hamming code for the message 1110 will be	0010110	Correct	1010110	Incorrect	0011110	Incorrect	0110110	Incorrect	5
MC	The generator polynomial is 10011 and message bits are	0010	Correct	0001	Incorrect	0110	Incorrect	1110	Incorrect	5

	1101011111. The CRC will be:									
MC	Pick the odd one out:	Stop & Wait ARQ	Incorrect	Stop & Wait	Correct	Selective Repeat ARQ	Incorrect	G-Back-N ARQ	Incorrect	1
MC	The maximum window size for data transmission using the selective repeat protocol with n-bit frame sequence numbers is:	2^(n)	incorrect	2^(n-1)	correct	2^(n-2)	incorrect	2^(n-3)	incorrect	1
MC	A dedicated link between two devices can be found in	Packet Switching Network	incorrect	Message Switching Network	incorrect	Point to Point Network	correct	None of the above	incorrect	1
MC	Start and stop bits do not contain an 'information' but are used in serial communication for	Error detection	incorrect	Error correction	incorrect	Synchronization	correct	Slowing down the communications	incorrect	1
MC	Five channels, each with a l00-kHz bandwidth, are to be multiplexed together. What is the minimum bandwidth of the link if there is a need for a guard band of 10kHz between the channels to prevent	500 KHZ	INCORRECT	520 KHZ	INCORRECT	540 KHZ	CORRECT	550 KHZ	INCORRECT	1

	interference?									
MC	size of Frame control field in IEEE 802.11 MAC Frame format is	2 Byte	CORRECT	4 Byte	INCORRECT	8 Byte	INCORRECT	16 Byte	INCORRECT	1
MC	There are n stations in a slotted LAN. Each station attempts to transmit with a probability p in each time slot. What is the probability that ONLY one station transmits in a given time slot?	(1-p)^(n-1)	INCORRECT	$np(1-p)^{(n-1)}$	CORRECT	p(1-p)^(n-1)	INCORRECT	1-(1-p)(n-1)	INCORRECT	5
MC	Which of the following statements is TRUE about CSMA/CD	IEEE 802.11 wireless LAN runs CSMA/CD protocol	INCORRECT	Ethernet is not based on CSMA/CD protocol	INCORRECT	CSMA/CD is not suitable for a high propagation delay network like satellite network	CORRECT	There is no contention in a CSMA/CD network	INCORRECT	1
MC	In an Ethernet local area network, which one of the following statements is TRUE ?	A station stops to sense the channel once it starts transmitting a frame.	INCORRECT	The purpose of the jamming signal is to pad the frames that are smaller than the	INCORRECT	A station continues to transmit the packet even after the collision is detected.	INCORRECT	The exponential backoff mechanism reduces the probability of collision on retransmission	CORRECT	1

				minimum frame size.				s		
MC	A packet has arrived in which the offset value is 200, the value of HLEN is 7, and the value of the total length field is 100. What are the numbers of the first byte and the last byte?	1600 and 1672	INCORRECT	1600 and 1671	CORRECT	1500 and 1572	INCORRECT	1500 and 1571	INCORRECT	5
MC	An IPv4 packet has arrived with the first few hexadecimal digits as shown 0x450000280001 00000102 IN HEXADECIMAL. What is the total length of packet?	20	INCORRECT	40	INCORRECT	32	CORRECT	60	INCORRECT	5
MC	The subnet mask for a particular network is 255.255.31.0. Which of the following pairs of IP addresses could belong to this network?	172.57.88.62 and 172.56.87.233	INCORRECT	10.35.28.2 and 10.35.29.4	INCORRECT	191.203.31.87 and 191.234.31.88	INCORRECT	128.8.129.43 and 128.8.161.55	CORRECT	5

MC	IPv6 does not support which of the following addressing modes?	unicast addressing	INCORRECT	Multicast addressing	INCORRECT	Broadcast Address	CORRECT	anycast address	INCORRECT	1
MC	Which of the following fields in IPV4 datagram is not related to fragmentation?	Type of service	CORRECT	Fragment offset	INCORRECT	Flags	INCORRECT	Identification	INCORRECT	1
MC	Distance Vector Approach is used in which routing Protocol	OSPF	INCORRECT	RIP	CORRECT	BGP	INCORRECT	I-BGP	INCORRECT	1
MC	in which routing protocol Dijkstra algorithm is used to calculate the shortest path	OSPF	CORRECT	RIP	INCORRECT	BGP	INCORRECT	I-BGP	INCORRECT	1
MC	Message from device A consist of packet X and Y. If the datagram packet switching approach is used. Packet X path is …… packet Y path	is same as	INCORRECT	dependent of	INCORRECT	independent of	CORRECT	is always different from	INCORRECT	1
MC	echo request and echo reply message is used for	echo purpose	INCORRECT	address purpose	INCORRECT	Diagnostic purpose	CORRECT	synchronization purpose	INCORRECT	1
MC	Two computers C1 and C2 are configured as follows. C1 has IP address 203.197.2.53	C1 and C2 both assume they are on the same	INCORRECT	C2 assumes C1 is on same network, but C1 assumes C2	INCORRECT	C1 assumes C2 is on same network, but C2 assumes C1 is on a different	CORRECT	C1 and C2 both assume they are on different networks	INCORRECT	5

	and netmask 255.255.128.0. C2 has IP address 203.197.75.201 and netmask 255.255.192.0. Which one of the following statements is true?	network		is on a different network		network				
MC	Which one of the following is TRUE about interior Gateway routing protocols - Routing Information Protocol (RIP) and Open Shortest Path First (OSPF)	RIP uses distance vector routing and OSPF uses link state routing	CORRECT	OSPF uses distance vector routing and RIP uses link state routing	INCORRECT	Both RIP and OSPF use link state routing	INCORRECT	Both RIP and OSPF use distance vector routing	INCORRECT	1
MC	One of the header fields in an IP datagram is the Time to Live (TTL)field. Which of the following statements best explains the need for this field?	It can be used to prevent packet looping	CORRECT	It can be used to prioritize packets	INCORRECT	It can be used to reduce delays	INCORRECT	It can be used to optimize throughput	INCORRECT	1
MC	In _____ routing, we assume that there is one node (or more) in each autonomous system that acts	distance vector	INCORRECT	path vector	CORRECT	link state	INCORRECT	none of the above	INCORRECT	1

	on behalf of the entire autonomous system.									
MC	Consider three machines A, B and C with IP addresses 100.10.5.2, 100.10.5.5 and 100.10.5.6 respectively. The subnet mask is set to 255.255.255.252 for all the three machines. Which one of the following is true?	A, B and C all belong to the same subnet	INCORRECT	Only B and C belong to the same subnet	CORRECT	A, B, and C belong to three different subnets	INCORRECT	Only A and B belong to the same subnet	INCORRECT	5
MC	Consider the following statements. I. TCP connections are full duplex. II. TCP has no option for selective acknowledgment III. TCP connections are message streams.	Only I is correct	CORRECT	Only I and II are correct	INCORRECT	Only II and III are correct	INCORRECT	All of I, II and III are correct	INCORRECT	1
MC	The transport layer protocols used for real time multimedia, file transfer, DNS and email,	TCP, UDP, UDP and TCP	INCORRECT	UDP, TCP, TCP and UDP	INCORRECT	UDP, TCP, UDP and TCP	CORRECT	TCP, UDP, TCP and UDP	INCORRECT	1

	respectively are:									
MC	Which of the following system calls results in the sending of SYN packets?	socket	INCORRECT	bind	INCORRECT	listen	INCORRECT	connect	CORRECT	1
MC	In the slow start phase of the TCP congestion control algorithm, the size of the congestion window	does not increase	INCORRECT	increases linearly	INCORRECT	increases quadratically	INCORRECT	increases exponentially	CORRECT	1
MC	Packets of the same session may be routed through different paths in	TCP, but not UDP	INCORRECT	TCP and UDP	CORRECT	UDP, but not TCP	INCORRECT	Neither TCP, nor UDP	INCORRECT	1
MC	Which of the following control fields in TCP header is used during the connection establishment and data transmission	SYN and FIN	INCORRECT	SYN and RST	INCORRECT	SYN and PSH	CORRECT	PSH and RST	INCORRECT	1
MC	Which of the following functionalities must be implemented by a transport protocol over and above the	Recovery from packet losses	INCORRECT	Detection of duplicate packets	INCORRECT	Packet delivery in the correct order	INCORRECT	End to end connectivity	CORRECT	1

	network protocol ?									
MC	In one of the pairs of protocols given below, both the protocols can use multiple TCP connections between the same client and the server. Which one is that?	HTTP, FTP	CORRECT	HTTP, TELNET	INCORRECT	HTTP, SMTP	INCORRECT	FTP, SMTP	INCORRECT	1
MC	HTTP functions as a combination of	HTTP, TELNET	INCORRECT	FTP and SMTP	CORRECT	HTTP, TELNET and FTP	INCORRECT	HTTP, TELNET and DNS	INCORRECT	1
MC	Methods for Name-address resolution in DNS	Recursive	INCORRECT	Iterative	INCORRECT	Recursive and Iterative	CORRECT	Inverse	INCORRECT	1
MC	Different types of tree used in DNS are	Generic	INCORRECT	Country	INCORRECT	Inverse	INCORRECT	Generic, country and Inverse	CORRECT	1