Name:

Enrolment No:



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

Course: Data Communication and Networking Course Code: CSEG2009 Programme: B.Tech-CSE-IOT&SC Instructions:

Semester: IV Time:2-4 PM Max. Marks: 100

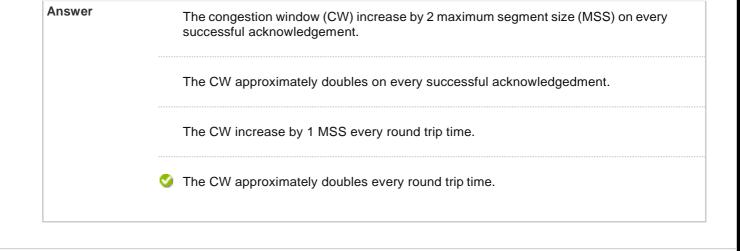
Dr. Mrinal Goswami UPES

		Mrinal Goswami 20) 🖷
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□ 1	-	oice: Which of the following protocol pairs	
	Question Answer	Which of the following protocol pairs can be used to send and retrieve e-mails (in that order) "SMTP, MIME"	?
		 ✓ "SMTP, POP3" 	
		"IMAP, POP3"	
		"IMAP, SMTP"	
2	. Multiple Ch	oice: A router modifies the IP packets duri Point	s: 1
	Question	A router modifies the IP packets during forwarding.	
	Answer		

3. Multiple Ch	oice: It is not necessary for a router to i	Point
Question	It is not necessary for a router to implement any routing protocol during routing	
Answer	S TRUE	
	FALSE	
		Deint
. Multiple Ch	oice: "Consider a TCP connection between a	Point
L. Multiple Ch	"Consider a TCP connection between a client and a server with the following specification the round trip time is 6 ms, the size of the receiver advertised window is 50 KB, slow so threshold at the client is 32 KB, and the maximum segment size is 2 KB. The connection established at time t=0. Assume that there are no timeouts and errors during transmiss. Then the size of the congestion window (in KB) at time t+60 ms after all acknowledgem are processed is"	ions: start on is sion.
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"The size of UDP header's port number, Ethernet MAC address, IPv6 next header, TCP header's sequence no. is respectively (in bits)"
"32, 16, 8, 40"
"8, 48, 16, 32"
✓ "16, 48, 8, 32"
"16, 48, 32, 8"

$\hfill\square$ 6. Multiple Choice: "In the slow start phase of the TCP c...



\Box 7. Multiple Choice: "If a computer network uses (x^3 + x ...

Question	"If a computer network uses $(x^3 + x + 1)$ as the CRC generator polynomial to generate the check bits. In this network, the message 01011011 is transmitted as"
Answer	1011011010
	1011011011
	S 1011011101
	1011011100

Points: 1

Points: 1

□ 8. Multiple Choice: "Consider two hosts X and Y, connecte...

Question	"Consider two hosts X and Y, connected by a single direct link of rate 10^6 bits/sec. The distance between the two hosts is 10,000 km and the propagation speed along the link is 2×10^{8} m/sec. Host X sends a file of 50,000 bytes as one large message to host Y continuously. Let the transmission and propagation delays be p milliseconds and q milliseconds, respectively. Then the values of p and q are"
Answer	p=50 and q=100
	p=50 and q=400
	p=100 and q=500
	✓ p=400 and q=50

🗌 9. Multiple Ch	oice: Find out that protocol which is NOT u	Points: 1
Question	Find out that protocol which is NOT used to resolve one form of address to anoth	ner one.
Answer	DNS	

RARP	
OHCP	

igsquire 10. Multiple Choice: Which of the following is an example ...

Points: 1

Points: 1

Which of the following is an example of stateful transport layer protocols?
HTTP
FTP
S TCP
UDP

□ 11. Multiple Choice: "In an Ethernet local area network, w...

Question	"In an Ethernet local area network, which one of the following statements is TRUE?"
Answer	A station stops to sense the channel once it starts transmitting a frame.
	The exponential backoff mechanism reduces the probability of collision on retransmissions.
	The purpose of the jamming signal is to pad the frames that are smaller than the minimum frame size.
	A station continues to transmit the packet even after the collision is detected.

□ 12. Multiple Choice: A network has a data transmission ban...

in the MAC layer. The maximum signal propagation time from one node to another node is 40 microseconds. The minimum size of a frame in the network is (in bytes)
198
199
200

3. Multiple Cl	hoice: "In TCP, if the sequence number of a	Point
Question	"In TCP, if the sequence number of a segment is m, then the sequence number of the subsequent segment is always m+1."	;
Answer	TRUE	
	S FALSE	
4. Multiple Cl	hoice: "In TCP, if the estimated round trip	Point
Question	"In TCP, if the estimated round trip time at any given point of time is t sec, the value or retransmission timeout is always set to greater than or equal to t sec."	f the
Answer	S TRUE	
5. Multiple Cl	FALSE	Point
5. Multiple Cl		
-	hoice: "In TCP, the size of the advertised w "In TCP, the size of the advertised window never changes during the course of the TC	
Question	hoice: "In TCP, the size of the advertised w "In TCP, the size of the advertised window never changes during the course of the TC connection."	Point
Question	hoice: "In TCP, the size of the advertised w "In TCP, the size of the advertised window never changes during the course of the TC connection." TRUE	CP
Question	hoice: "In TCP, the size of the advertised w "In TCP, the size of the advertised window never changes during the course of the TC connection." TRUE FALSE	Point
Question Answer 6. Multiple Cl	hoice: "In TCP, the size of the advertised w "In TCP, the size of the advertised window never changes during the course of the TC connection." TRUE © FALSE hoice: "In TCP, the number of unacknowledged "In TCP, the number of unacknowledged bytes at the sender is always less than or ed	Point
Question Answer 6. Multiple Cl	hoice: "In TCP, the size of the advertised window never changes during the course of the TC connection." TRUE FALSE Noice: "In TCP, the number of unacknowledged "In TCP, the number of unacknowledged bytes at the sender is always less than or ea the advertised window"	Point

Question	Which one of the following fields of an IP header is NOT modified by a typical IP router?
Answer	

	Time to Live (TTL)	
	Source Address	
	Checksum	
	Length	
8. Multiple Cl	noice: TCP connections are message streams	Points
Question	TCP connections are message streams.	
Answer	TRUE	
	S FALSE	
9. Multiple Cl	noice: The computational overhead in link st	Points
Question	The computational overhead in link state routing protocols is higher than in distance protocols.	vector
Answer	S TRUE	
	FALSE	
20. Multiple Cl	noice: "A distance vector routing protocol (Points
Question	"A distance vector routing protocol (with split horizon) avoids persistent routing loop link state routing protocol."	s, but not
Answer	TRUE	

Answer	TRUE
	S FALSE

□ 21. Multiple Choice: "After a topology change, a link stat...

Question	"After a topology change, a link state routing protocol will converge faster than a distance vector routing protocol."
Answer	S TRUE
	FALSE

. Multiple C	hoice: Odd number of bits in error can be de	Points:
Question	Odd number of bits in error can be detected in CRC if (Let $G(x)$ be the CRC generato polynomial)	r
Answer	1+x is a factor of G(x)	
	G(x) has an odd number of terms	
	G(x) contains more than two terms	
	None of the above	

$\hfill 23.$ Multiple Choice: "In the slow start phase of the TCP $\hfill c...$

Points: 1

Question	"In the slow start phase of the TCP congestion control algorithm, the size of the congestion window"
Answer	does not increase
	increases linearly
	🤡 increases exponentially
	increases quadratically

□ 24. Multiple Choice: "If a class B network on the Internet...

Points: 1

Question	"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?"
Answer	2048
	2046
	65536
	65534

□ 25. Multiple Choice: Distance vector routing algo requires...

	S TRUE	
	FALSE	
6. Multiple Cl	noice: TCP handles both congestion and flow	Point
Question	TCP handles both congestion and flow control	
Answer	S TRUE	
	FALSE	
7. Multiple Ch	noice: UDP handles congestion but not flow c	Point
Question	UDP handles congestion but not flow control	
Answer	TRUE	
	SFALSE	Point
8. Multiple Ch Question Answer		Point
Question	noice: In TCP, early retransmit deals w In TCP, early retransmit deals with congestion but not flow control	Point
Question Answer 9. Multiple Ch	noice: In TCP, early retransmit deals w In TCP, early retransmit deals with congestion but not flow control TRUE FALSE noice: TCP slow start mechanism deals with b	
Question Answer	hoice: In TCP, early retransmit deals w In TCP, early retransmit deals with congestion but not flow control TRUE FALSE hoice: TCP slow start mechanism deals with b TCP slow start mechanism deals with both congestion and flow control	
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Question Answer 9. Multiple Ch Question Answer	noice: In TCP, early retransmit deals w In TCP, early retransmit deals with congestion but not flow control C TRUE TALSE TCP slow start mechanism deals with b TCP slow start mechanism deals with both congestion and flow control TRUE	Point
Question Answer 9. Multiple Ch Question Answer	noice: In TCP, early retransmit deals w In TCP, early retransmit deals with congestion but not flow control TRUE TCP slow start mechanism deals with b TCP slow start mechanism deals with both congestion and flow control TRUE FALSE FALSE FALSE	Point

0	
	Same as the baud rate
	None of the above

□ 31. Multiple Choice: Which one of the following uses UDP a...

Points: 1

Points: 1

HTTP
S DNS
SMTP
Email

$\hfill\square$ 32. Multiple Choice: The address of a class B host is to b...

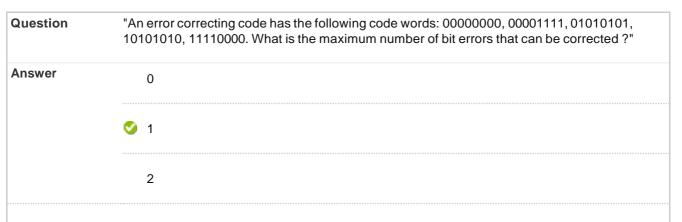
 Question
 The address of a class B host is to be split into subnets with a 6-bit subnet number. What is the maximum number of subnets and the maximum number of hosts in each subnet?

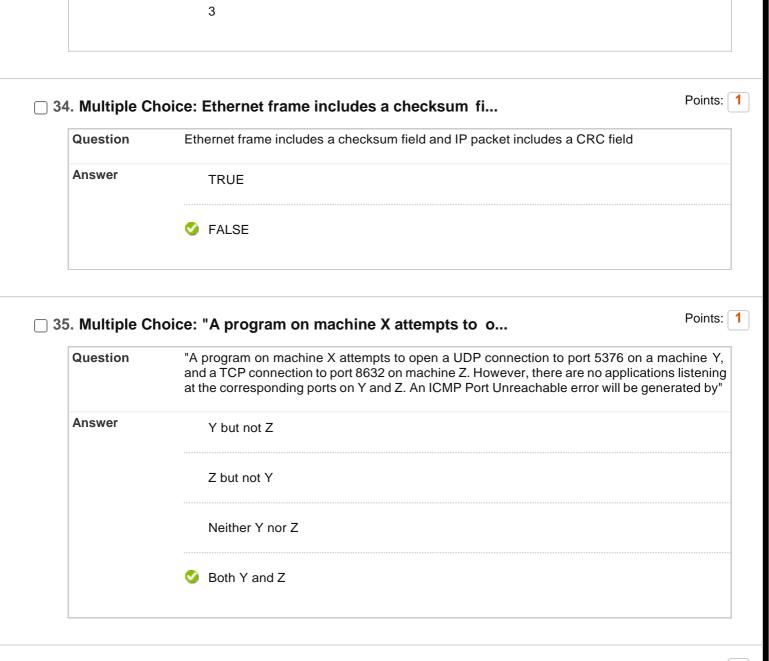
 Answer
 62 subnets and 262142 hosts.

 64 subnets and 262142 hosts.
 64 subnets and 1024 hosts

 §
 62 subnets and 1024 hosts

□ 33. Multiple Choice: "An error correcting code has the fol...





☐ 36. Multiple Choice: The maximum window size for data tran...

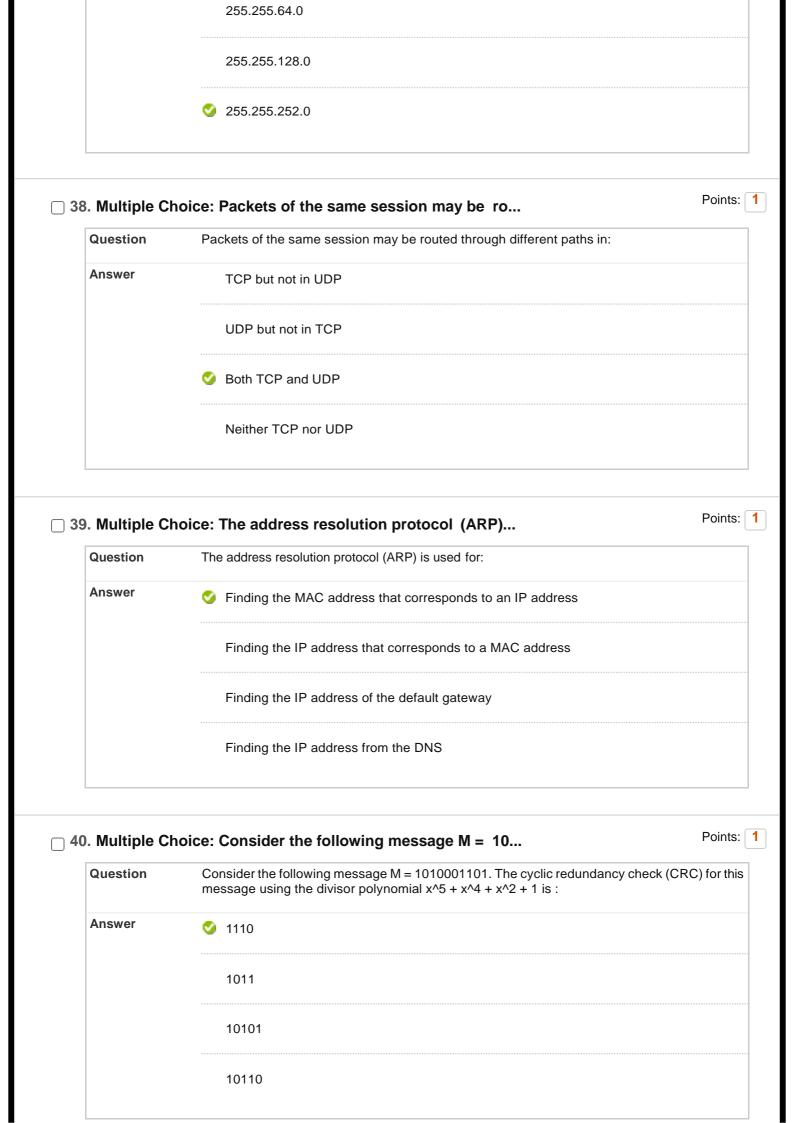
Points: 1

Question	The maximum window size for data transmission using the selective repeate protocol with n- bit frame sequence numbers is:
Answer	2^(n)
	S 2^(n-1)
	2^(n-2)
	2^(n-3)

□ 37. Multiple Choice: An organization has a class B network...

Points:	1
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Question	An organization has a class B network and wishes to form subnets for 64 departments. The subnet mask would be:
Answer	255.255.0.0



Question	A bridge uses IP addresses while a router uses MAC addresses	
Answer	TRUE	
	S FALSE	
. Multiple Cl	hoice: Packet switching can lead to reorderi	Poir
Question	Packet switching can lead to reordering unlike in circuit switching	
Answer	📀 TRUE	
	FALSE	
Maltine		Poir
. Multiple Cl	hoice: Packet switching results in less vari Packet switching results in less variation in delay than circuit switching.	Poir
-		Poir
Question	Packet switching results in less variation in delay than circuit switching.	Poir
Question	Packet switching results in less variation in delay than circuit switching.	
Question	Packet switching results in less variation in delay than circuit switching. TRUE FALSE	Poir
Question Answer	Packet switching results in less variation in delay than circuit switching. TRUE FALSE For False A subnet has been assigned a subnet mask of 255.255.192. What is the maximum	Poir Poir

32	
S 62	
64	

□ 45. Multiple Choice: "A host is connected to a Department ...

Points: 1

Question

Answer	the subnet to which the host belongs	
	the Department network	
	the University network	
	the Internet	
. Multiple Cł	hoice: "In TCP, a unique sequence number is	Poir
Question	"In TCP, a unique sequence number is assigned to each"	
Answer	📀 byte	
	segment	
	word	
	bits	
. Multiple Cl	noice: "In the TCP/IP protocol suite, which	Poi
	"In the TCP/IP protocol suite, which one of the following is NOT part of the IP head	er?"
Question		
Question Answer	Fragment Offset	
	Fragment Offset Source IP address	
	Source IP address	
Answer	Source IP address Destination IP address	Poi
Answer	Source IP address Destination IP address Source IP address Destination port number	

FALSE

Multiple Ch	noice: IP ensures that a packet is discarded	Poi
Question	IP ensures that a packet is discarded if it is unable to reach its destination within a giv number of hops	ren
Answer	S TRUE	
	FALSE	
Multiple Ch	noice: Start and stop bits do not contain an	Poir
Question	Start and stop bits do not contain an information but are used in serial communication	n for
Answer	Error detection	
	Error correction	
	Synchronization	
	Slowing down the communications	
. Multiple Cł	noice: Which is NOT part of the fundamental	Poi
-	Noice: Which is NOT part of the fundamental Which is NOT part of the fundamental characteristics of data communication?	Poi
Multiple Ch Question Answer		Poir

Multiple Cl	hoice: A two-way street with traffic flowing	Points
Question	A two-way street with traffic flowing in both directions at the same time is an example of	of
Answer	S Full-Duplex	

1

Timeliness

Sefficiency

53. Multiple C	noice: A dedicated link between two devices	Point
Question	A dedicated link between two devices can be found in	
Answer	Packet Swicthing Network	
	Message Switching Network	
	Point to Point Network	
	None of the above	

Answer	20 Hz
	🥝 40 Hz
	60 Hz
	80 Hz

. Multiple Cl	hoice: A high SNR means the signal is less c
Question	A high SNR means the signal is less corrupted by noise; a low SNR means the signal is mo corrupted by noise.
Answer	🔮 TRUE
	FALSE

\square 56. Multiple Choice: "A network with bandwidth of 10 Mbps \dots

Question	"A network with bandwidth of 10 Mbps can pass only an average of 12,000 frames per minute
	with each frame carrying an average of 10,000 bits. What is the throughput of this network?"

Ans	S 2 Mbps
	6 Mbps
	8 Mbps
	1 Mbps

Question	The time takes for an entire message to completely arrive at the destination from the time th first bit is sent out from the source is called
Answer	Propagation time
	Transmission time
	Processing delay
	S Latency

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"
"SNR = 40, SNRdB =10000"
"SNR = 40000, SNRdB =10"
"SNR = 40000, SNRdB =100"

☐ 59. Multiple A	nswer: The TTL field in IP datagram is used	Points: 1
Question	The TTL field in IP datagram is used as	
Answer	It can be used to prioritize packets	
	It can be used to reduce delays	
	It can be used to optimize throughput	

□ 60. Multiple Answer: A digitized voice channel is made by ...

Question 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? Answer 64000 kbps 60000 kbps 64 kbps ø 60 kbps Select: <u>All None</u> Select by Type: - Question Type - 🗸 Points Update and Regrade Delete and Regrade Hide Question Details $\leftarrow \mathsf{OK}$