Name:

Enrolment No:

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

Course: Data Communication and Networking **Semester: IV**
Course Code: CSEG2009 **Time:2-4 PM**
Programme: B.Tech-CSE-IOT&SC **Max. Marks: 100**
Instructions:

Dr. Mrinal Goswami

UPES

This Test has 65 attempts. For information on editing questions, click **More Help** below.

X

Test Canvas: DCN END SEM JULY 2020

The Test Canvas lets you add, edit and reorder questions, as well as review a test. More Help

Question Settings

You can edit, delete or change the point values of test questions on this page. If necessary, test attempts will be regraded after you submit your changes.

Description	
Instructions	
Total Questions	60
Total Points	60
Number of Attempts	65

Select: All None | Select by Type: - Question Type -

Delete and Regrade | Points | Update and Regrade | Hide Question Details

1. Multiple Choice: Which of the following protocol pairs...

Points: 1

Question	Which of the following protocol pairs can be used to send and retrieve e-mails (in that order)?
Answer	"SMTP, MIME"
	✓ "SMTP, POP3"
	"IMAP, POP3"
	"IMAP, SMTP"

2. Multiple Choice: A router modifies the IP packets duri...

Points: 1

Question	A router modifies the IP packets during forwarding.
Answer	✓ TRUE

FALSE

3. Multiple Choice: It is not necessary for a router to i...

Points: 1

Question	It is not necessary for a router to implement any routing protocol during routing
Answer	✓ TRUE
	FALSE

4. Multiple Choice: "Consider a TCP connection between a ...

Points: 1

Question	"Consider a TCP connection between a client and a server with the following specifications: the round trip time is 6 ms, the size of the receiver advertised window is 50 KB, slow start threshold at the client is 32 KB, and the maximum segment size is 2 KB. The connection is established at time t=0. Assume that there are no timeouts and errors during transmission. Then the size of the congestion window (in KB) at time t+60 ms after all acknowledgements are processed is_____"
Answer	40 KB
	✓ 44 KB
	48 KB
	52 KB

5. Multiple Choice: "The size of UDP header's port number...

Points: 1

Question	"The size of UDP header's port number, Ethernet MAC address, IPv6 next header, TCP header's sequence no. is respectively (in bits)"
Answer	"32, 16, 8, 40"
	"8, 48, 16, 32"
	✓ "16, 48, 8, 32"
	"16, 48, 32, 8"

6. Multiple Choice: "In the slow start phase of the TCP c...

Points: 1

Question	"In the slow start phase of the TCP congestion control algorithm, which of the following statement is true?"

Answer	The congestion window (CW) increase by 2 maximum segment size (MSS) on every successful acknowledgement.
	The CW approximately doubles on every successful acknowledgedment.
	The CW increase by 1 MSS every round trip time.
	✓ The CW approximately doubles every round trip time.

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

Points: 1

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
	✓ 1011011101
	1011011100

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

Points: 1

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 Choice: 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 another one.
Answer	DNS

	ARP
	RARP
✓	DHCP

10. **Multiple Choice: Which of the following is an example ...** Points: 1

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

11. **Multiple Choice: "In an Ethernet local area network, w...** Points: 1

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...** Points: 1

Question	A network has a data transmission bandwidth of 20 × 10^6 bits per second. It uses CSMA/CD 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)
Answer	198
	199
✓	200

201

13. **Multiple Choice: "In TCP, if the sequence number of a ...** Points: 1

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
	✓ FALSE

14. **Multiple Choice: "In TCP, if the estimated round trip ...** Points: 1

Question	"In TCP, if the estimated round trip time at any given point of time is t sec, the value of the retransmission timeout is always set to greater than or equal to t sec."
Answer	✓ TRUE
	FALSE

15. **Multiple Choice: "In TCP, the size of the advertised w...** Points: 1

Question	"In TCP, the size of the advertised window never changes during the course of the TCP connection."
Answer	TRUE
	✓ FALSE

16. **Multiple Choice: "In TCP, the number of unacknowledged...** Points: 1

Question	"In TCP, the number of unacknowledged bytes at the sender is always less than or equal to the advertised window"
Answer	✓ Ture
	FALSE

17. **Multiple Choice: Which one of the following fields of ...** Points: 1

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

18. **Multiple Choice: TCP connections are message streams. ...** Points: 1

Question	TCP connections are message streams.
Answer	TRUE
	✓ FALSE

19. **Multiple Choice: The computational overhead in link st...** Points: 1

Question	The computational overhead in link state routing protocols is higher than in distance vector protocols.
Answer	✓ TRUE
	FALSE

20. **Multiple Choice: "A distance vector routing protocol (...** Points: 1

Question	"A distance vector routing protocol (with split horizon) avoids persistent routing loops, but not a link state routing protocol."
Answer	TRUE
	✓ FALSE

21. **Multiple Choice: "After a topology change, a link stat...** Points: 1

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

22. Multiple Choice: Odd number of bits in error can be de...

Points: 1

Question	Odd number of bits in error can be detected in CRC if (Let G(x) be the CRC generator polynomial)
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

23. Multiple Choice: "In the slow start phase of the TCP 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...

Points: 1

Question	Distance vector routing algo requires lesser number of network messages than link state routing algo

Answer	✓ TRUE
	FALSE

☐ **26. Multiple Choice: TCP handles both congestion and flow ...** Points: 1

Question	TCP handles both congestion and flow control
Answer	✓ TRUE
	FALSE

☐ **27. Multiple Choice: UDP handles congestion but not flow c...** Points: 1

Question	UDP handles congestion but not flow control
Answer	TRUE
	✓ FALSE

☐ **28. Multiple Choice: In TCP, early retransmit deals w...** Points: 1

Question	In TCP, early retransmit deals with congestion but not flow control
Answer	✓ TRUE
	FALSE

☐ **29. Multiple Choice: TCP slow start mechanism deals with b...** Points: 1

Question	TCP slow start mechanism deals with both congestion and flow control
Answer	TRUE
	✓ FALSE

☐ **30. Multiple Choice: "In Ethernet when Manchester encoding...** Points: 1

Question	"In Ethernet when Manchester encoding is used, the bit rate is:"
Answer	Twice the baud rate.

	✓ Half the baud rate.
	Same as the baud rate
	None of the above

31. Multiple Choice: Which one of the following uses UDP a... Points: 1

Question	Which one of the following uses UDP as the transport protocol?
Answer	HTTP
	✓ DNS
	SMTP
	Email

32. Multiple Choice: The address of a class B host is to b... Points: 1

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 1022 hosts.

33. Multiple Choice: "An error correcting code has the fol... Points: 1

Question	"An error correcting code has the following code words: 00000000, 00001111, 01010101, 10101010, 11110000. What is the maximum number of bit errors that can be corrected ?"
Answer	0
	✓ 1
	2

3

34. **Multiple Choice: Ethernet frame includes a checksum fi...** Points: 1

Question	Ethernet frame includes a checksum field and IP packet includes a CRC field
Answer	TRUE
	✓ FALSE

35. **Multiple Choice: "A program on machine X attempts to o...** Points: 1

Question	"A program on machine X attempts to open a UDP connection to port 5376 on a machine Y, and a TCP connection to port 8632 on machine Z. However, there are no applications listening at the corresponding ports on Y and Z. An ICMP Port Unreachable error will be generated by"
Answer	Y but not Z
	Z but not Y
	Neither Y nor Z
	✓ Both Y and Z

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)
	✓ 2^(n-1)
	2^(n-2)
	2^(n-3)

37. **Multiple Choice: An organization has a class B network...** Points: 1

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

255.255.64.0

255.255.128.0

✓ 255.255.252.0

38. Multiple Choice: Packets of the same session may be ro... Points: 1

Question	Packets of the same session may be routed through different paths in:
Answer	TCP but not in UDP
	UDP but not in TCP
	✓ Both TCP and UDP
	Neither TCP nor UDP

39. Multiple Choice: The address resolution protocol (ARP)... Points: 1

Question	The address resolution protocol (ARP) is used for:
Answer	✓ Finding the MAC address that corresponds to an IP address
	Finding the IP address that corresponds to a MAC address
	Finding the IP address of the default gateway
	Finding the IP address from the DNS

40. Multiple Choice: Consider the following message M = 10... Points: 1

Question	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 :
Answer	✓ 1110
	1011
	10101
	10110

41. **Multiple Choice: A bridge uses IP addresses while a ro...** Points: 1

Question	A bridge uses IP addresses while a router uses MAC addresses
Answer	TRUE
	✓ FALSE

42. **Multiple Choice: Packet switching can lead to reorderi...** Points: 1

Question	Packet switching can lead to reordering unlike in circuit switching
Answer	✓ TRUE
	FALSE

43. **Multiple Choice: Packet switching results in less vari...** Points: 1

Question	Packet switching results in less variation in delay than circuit switching.
Answer	TRUE
	✓ FALSE

44. **Multiple Choice: A subnet has been assigned a subnet m...** Points: 1

Question	A subnet has been assigned a subnet mask of 255.255.255.192. What is the maximum number of hosts that can belong to this subnet?
Answer	14
	32
	✓ 62
	64

45. **Multiple Choice: "A host is connected to a Department ...** Points: 1

Question	

	"A host is connected to a Department network which is part of a University network. The University network, in turn, is part of the Internet. The largest network in which the Ethernet address of the host is unique is:"
Answer	the subnet to which the host belongs
	the Department network
	the University network
	✓ the Internet

☐ **46. Multiple Choice: "In TCP, a unique sequence number is ...** Points: 1

Question	"In TCP, a unique sequence number is assigned to each"
Answer	✓ byte
	segment
	word
	bits

☐ **47. Multiple Choice: "In the TCP/IP protocol suite, which ...** Points: 1

Question	"In the TCP/IP protocol suite, which one of the following is NOT part of the IP header?"
Answer	Fragment Offset
	Source IP address
	Destination IP address
	✓ Destination port number

☐ **48. Multiple Choice: IP packets from the same source to th...** Points: 1

Question	IP packets from the same source to the same destination can take different routes in the network
Answer	✓ TRUE
	FALSE

49. **Multiple Choice: IP ensures that a packet is discarded...** Points: 1

Question	IP ensures that a packet is discarded if it is unable to reach its destination within a given number of hops
Answer	✓ TRUE
	FALSE

50. **Multiple Choice: Start and stop bits do not contain an...** Points: 1

Question	Start and stop bits do not contain an information but are used in serial communication for
Answer	Error detection
	Error correction
	✓ Synchronization
	Slowing down the communications

51. **Multiple Choice: Which is NOT part of the fundamental ...** Points: 1

Question	Which is NOT part of the fundamental characteristics of data communication?
Answer	Delivery
	Accuracy
	Timeliness
	✓ Efficiency

52. **Multiple Choice: A two-way street with traffic flowing...** Points: 1

Question	A two-way street with traffic flowing in both directions at the same time is an example of
Answer	✓ Full-Duplex
	Multi-Duplex

Bi-Duplex

All of the above

53. **Multiple Choice: A dedicated link between two devices ...** Points: 1

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

54. **Multiple Choice: A periodic signal has a bandwidth of ...** Points: 1

Question	A periodic signal has a bandwidth of 20 Hz. The highest frequency is 60 Hz. What is the lowest frequency?
Answer	20 Hz
	✓ 40 Hz
	60 Hz
	80 Hz

55. **Multiple Choice: A high SNR means the signal is less c...** Points: 1

Question	A high SNR means the signal is less corrupted by noise; a low SNR means the signal is more corrupted by noise.
Answer	✓ TRUE
	FALSE

56. **Multiple Choice: "A network with bandwidth of 10 Mbps ...** Points: 1

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?"

Answer	✓ 2 Mbps
	6 Mbps
	8 Mbps
	1 Mbps

☐ **57. Multiple Choice: The time takes for an entire message ...** Points: 1

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

☐ **58. Multiple Choice: The power of a signal is 10 mW and th...** Points: 1

Question	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?
Answer	✓ "SNR = 10000, SNRdB=40"
	"SNR = 40, SNRdB =10000"
	"SNR = 40000, SNRdB =10"
	"SNR = 40000, SNRdB =100"

☐ **59. Multiple Answer: 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

It can be used to prevent packet looping

60. **Multiple Answer: A digitized voice channel is made by ...** Points: 1

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
	60 kbps

Select: All None Select by Type: - Question Type -

Delete and Regrade | Points | Update and Regrade | Hide Question Details

← OK