Question 1: Choose the correct options defining OSI protocol layers/sublayers and their functionality. [MSQ]

1) Data Link layer and Variable Size Framing
2) Data Link Layer and Error Correction
3) Data Link Layer and Error Detection
4) Network Layer and Congestion control

A) 1 & 2 only
B) 2 & 3 only
C) 1, 2 & 3 only
D) 4 only

Answer:(C)
Explanation:

1- True, DL has functionalities of framing stream of bits from PL in two ways: Fixed-Size Framing and variable-size Framing.
2- True, DL has error control, which is responsible for finding errors in frames of bits using parity check, CRC, Checksum
3- True, DL can detect all the errors like 1-bit errors, Multiple bit errors and Burst errors using error detection techniques like Parity Check, Checksum and Cyclic Redundancy Check (CRC)
4- False; Network Layer has the functionality of routing packets based on destination IP address, not congestion control.

Question 2: Choose the correct options for defining TCP-IP Layers and protocols used. [MSQ]

1) Network Layer with ARP
2) Transport Layer with UDP
3) Network Layer with ICMP
4) Data Link Layer DNS

A) 1 & 2 only
B) 2 & 3 only
C) 1, 2 & 3 only
D) 4 only

Answer:(C)
Explanation:

Network Layer has ARP, RARP, ICMP and IGMP
TCP UDP protocols work at the Transport Layer.
The Data Link layer has a Point protocol, not DNS; DNS is an Application Layer protocol.

Question 3: Which one of the following protocols is used to resolve one form of address to another one? [MSQ]

1) DNS
2) ARP
3) DHCP
4) RARP

A) 1 & 2 only
B) 2 & 3 only
C) 1, 2 & 3 only
D) 1, 2 & 4 only

Answer:(D)
Explanation:

DHCP is a dynamic host configuration protocol that allocates one of the unused IP addresses. Except for DHCP, all remaining protocols are used to resolve one form of address to another one.

1. DNS is going to convert the hostname to the IP address.
2. ARP is going to convert IP to MAC.
3. DHCP is going to assign IP dynamically.
4. RARP is going to convert MAC to IP.

Question 4: Which of the following is correct? [MSQ]

1) The network layer is responsible for packet delivery from host to host.
2) IPv4 addresses are unique.
3) Router and Bridge work at the Network layer.
4) Communication at the network layer in the Internet is Connectionless.

A) 1 & 2 only
B) 2 & 3 only
C) 1, 2 & 3 only
D) 1, 2 & 4 only

Answer:(D)
Explanation:

1- True, the Network Layer uses a logical address called IP address, using which every device on the Internet is uniquely identified.

2- True, IPv4 addresses are unique because No two devices on the Internet can never have the same address at the same time.
3- False, The Router works at the Network Layer, but the bridge works at the Data Link Layer
4- True, The Internet has chosen this type of service at the network layer; the reason for this decision is that the Internet is made of so many heterogeneous networks that it is almost impossible to create a connection from the source to the destination without knowing the nature of the networks in advance.

Question 5: Which address is used on the internet to employ the TCP/IP protocols?[MSQ]

1) Physical address
2) Logical address
3) Port address
4) None of these

A) 1 & 2 only
B) 2 & 3 only
C) 1, 2 & 3 only
D) 1, 2 & 4 only

Answer:(C)
Explanation:

The physical, logical and port addresses are used in the TCP/IP protocol.

Question 6: Which layer is responsible for process-to-process delivery in a general network model?

1) Network layer
2) Transport layer
3) Session layer
4) Data link layer

A) 1 & 2 only
B) 2 only
C) 1, 2 & 3 only
D) 1, 2 & 4 only

Answer:(B)
Explanation:

The role of the Transport layer (Layer 4) is to establish a logical end-to-end connection between two systems in a network.

The protocols used in the Transport layer are TCP and UDP. The transport layer is responsible for the segmentation of the data.
It uses ports for the implementation of process-to-process delivery.

Question 7: Which layer provides the services to the user?

1) Application layer
2) Session layer
3) Presentation layer
4) Physical layer

A) 1 only
B) 2 & 3 only
C) 1, 2 & 3 only
D) 1, 2 & 4 only

Answer:(A)
Explanation:

In networking, a user mainly interacts with the application layer to create and send information to other computers or networks. The application layer provides the interface between applications and the network.
It is the top-most layer in both the TCP/IP and the OSI model.

Question 8: Assume that a Source in INDIA and Destination Silicon Valley are connected through three intermediate routers in between. Determine how many times each packet has to visit the network layer, data link layer, and physical layer during transmission from source to destination.

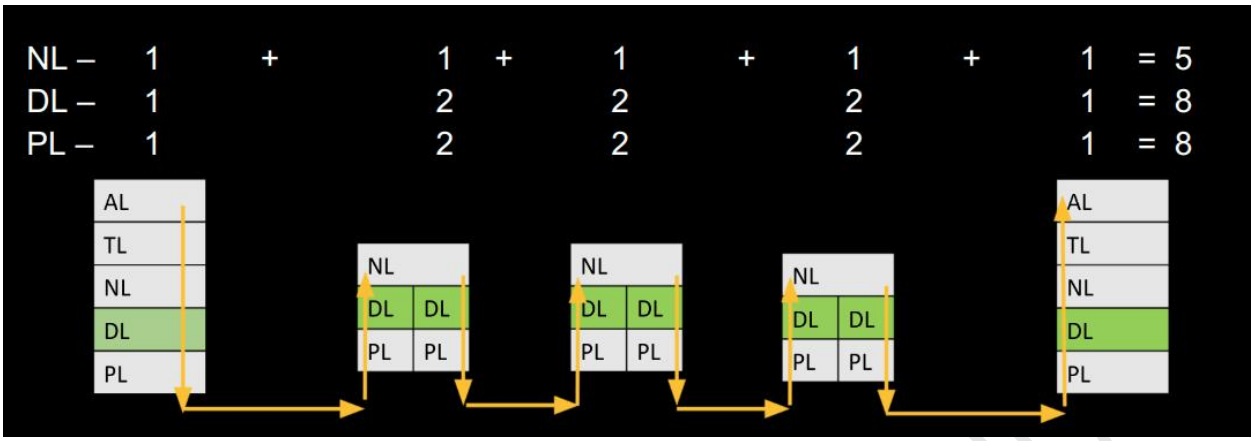
A) 5, 5, 5

B) 2, 4, 8

C) 2, 5, 8

D) 5, 8, 8

Answer:(D)
Explanation:



Question 9: Which layer of the ISO-OSI layer is responsible for the synchronization of the stream of data?

A) Session Layer
B) Presentation Layer
C) Network Layer
D) Data Link Layer

Answer:(A)
Explanation:

The session layer is responsible for dialogue control and synchronization.
The session layer allows a process to add checkpoints, or synchronization points, to a stream of data.

Question 10: Match the following? [MSQ]

1. Data Link Layer	a. IP address
2. Network Layer	b. MAC Address
3. Transport Layer	c. Well Known Port number
	d. point-to-point protocol

A) 1-a, 2-d, 3-b
B) 1-d, 2-a,3-c
C) 1-b, 2-a,3-c
D) 1-b, 2-a, 3-d

Answer:(B,C)
Explanation:

Data Link layer:
At the data link layer, we need a MAC address to choose one node among several nodes if the connection is not point-to-point.
Point-to-Point Protocol (PPP) is a data link layer communication protocol between two routers directly without any host or any other networking in between.

Network Layer:
The network layer is responsible for the delivery of datagrams between two hosts, which is called host-to-host delivery, where we need an IP address to choose one host among millions.

Transport Layer :
At the transport layer, we need a transport layer address called a port number. Universal port numbers are also called Well Known port numbers.