

# Networking

Select the most suitable statement.

Select one:

- ☐ Converged networks are LANs.
- ☐ None of the given statements are true.
- ☐ Converged networks carry data, voice, video & images over the same network.
- ☐ Converged networks are private networks.
- ☐ Converged networks carry social networking data.

Sri Lanka Institute of Information Technology

Copper cables are one of the most popular wired transmission medium because,

Select one:

- ☐ It is less costly in maintenance and installation.
- ☐ It is the only guided medium available.
- ☐ It uses differential signaling for signal transmission.
- ☐ Copper cables can bend in any direction.
- ☐ There are multiple number of cables.

What are the correct statements about "MAC address table"? (select two)

Select one or more:

- ☐ MAC address table is used by routers
- ☐ MAC address table is created for each computer
- ☐ MAC address table is used by switches
- ☐ MAC address table is a collection of MAC addresses with the respective connected ports
- ☐ None of the given answers are true

What is a main difference between a Switch and a Bridge?

Select one:

- ☐ Switch is large and a bridge is small.
- ☐ A bridge is used to connect LANs whereas a switch is used to create a LAN
- ☐ Bridge is used to segment a LAN while Switch is used to interconnect different LANs.
- ☐ There is no difference.
- ☐ Bridge is a dumb device while switch is an intelligent device.

Select the correct statements about network characteristics. (Select two)

Select one or more:

- ☐ The data rate is measured by bits per second of a given link in the network.
- ☐ Reliability indicates the non-dependability of the components that make up the network.
- ☐ Scalability indicates how many nodes are currently on the network.
- ☐ The logical topology is the arrangement of cables, network devices, and end systems.
- ☐ Availability is a measure of the probability that the network will be available for use when it is req

Devices on one network can communicate with devices on another network via, (Select two)

Select one or more:

- ☐ Gateway
- ☐ Multiplexer
- ☐ Hub
- ☐ Router
- ☐ Printer

Which of the following statements are true? (select two).

Select one or more:

- ☒ Point-to-Point connection provides a dedicated link between the two devices.
- ☐ Point to point connection is always build using a wireless media.
- ☐ Multi-point connection is always build using a wireless media.
- ☐ Point to point connection is always build using a copper cable.
- ☒ A multipoint connection is a connection established between more than two devices.

Select the statement which is not true.

Select one:

- ☐ The internet is defined as a global mesh of interconnected networks.
- ☐ The protocols related to the Internet is defined by IETF and IRTF
- ☐ The internet architecture standards are defined by Internet Architecture Board.
- ☐ The internet is owned by Internet Society (ISOC).
- ☐ The internet is a public network.

Which of the following is not a benefit of the layered networking model?

Select one:

- ☐ a. Provides a common language
- ☐ b. Assists in protocol design
- ☐ c. Changes in one layer do not affect other layers
- ☐ d. Create a competition between vendors
- ☒ e. Allows one organization to control the protocol design

What is **not** a technology used in Local Area Networks (LAN)

Select one:

- ☐ Ethernet
- ☒ Virtual Private Network
- ☐ 10 Gigabit Ethernet
- ☐ Token ring ?
- ☐ Fast Ethernet

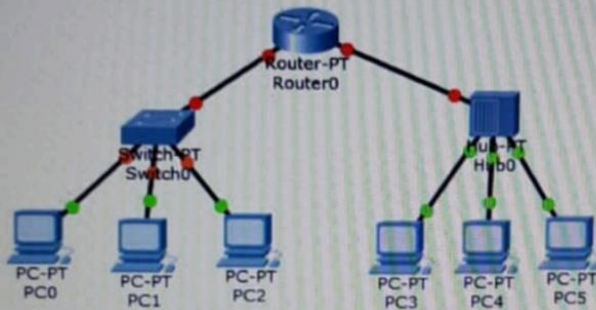


Which of the following statement is NOT true?

Select one:

- ☐ a. Fiber optics is an example of Unguided media
- ☐ b. Unguided media signals are transmitted into air
- ☐ c. Unguided media are also known as as wireless communication
- ☐ d. Unguided media transmission requires an antenna
- ☐ e. Unguided media uses electromagnetic waves

Which of the following statements describe the network shown in the graphic? (Select two)



Select one or more:

Select one or more:

- ☒ There are total number of six broadcast domains in the network.
- ☐ There are total number of seven collision domains in the network.
- ☐ There are total number of five collision domains in the network.
- ☒ There are total number of four broadcast domains in the network.
- ☐ There are total number of four collision domains in the network.
- ☒ There are total number of two broadcast domains in the network.

What are the correct statements about "MAC address table"? (select two)

Select one or more:

- ☐ None of the given answers are true
- ☐ MAC address table is used by routers
- ☐ MAC address table is a collection of MAC addresses with the respective connected ports
- ☐ MAC address table is created for each computer
- ☒ MAC address table is used by switches ethernet switch

Match the ISO-OSI Layer to correct address type used in Network Communications.

Network Layer

IP Address ✓

Data Link Layer

Choose... physical addressing

Transport Layer

Choose... port address

Which **characteristic** is not addressed by a network architecture design.

Select one:

- ☐ Quality of Service.
- ☒ Durability.
- ☐ Fault Tolerance.
- ☐ Security.
- ☐ Scalability.



Match the given address to the correct address type.

FE80:CD00:0000:0CDE:1257:0000:211E:729C

Choose...

IPV6



00:1B:44:11:3A:B7

Choose...

MAC address

203.147.23.20

Choose...

IPV4



Select the correct statement.

Select one:

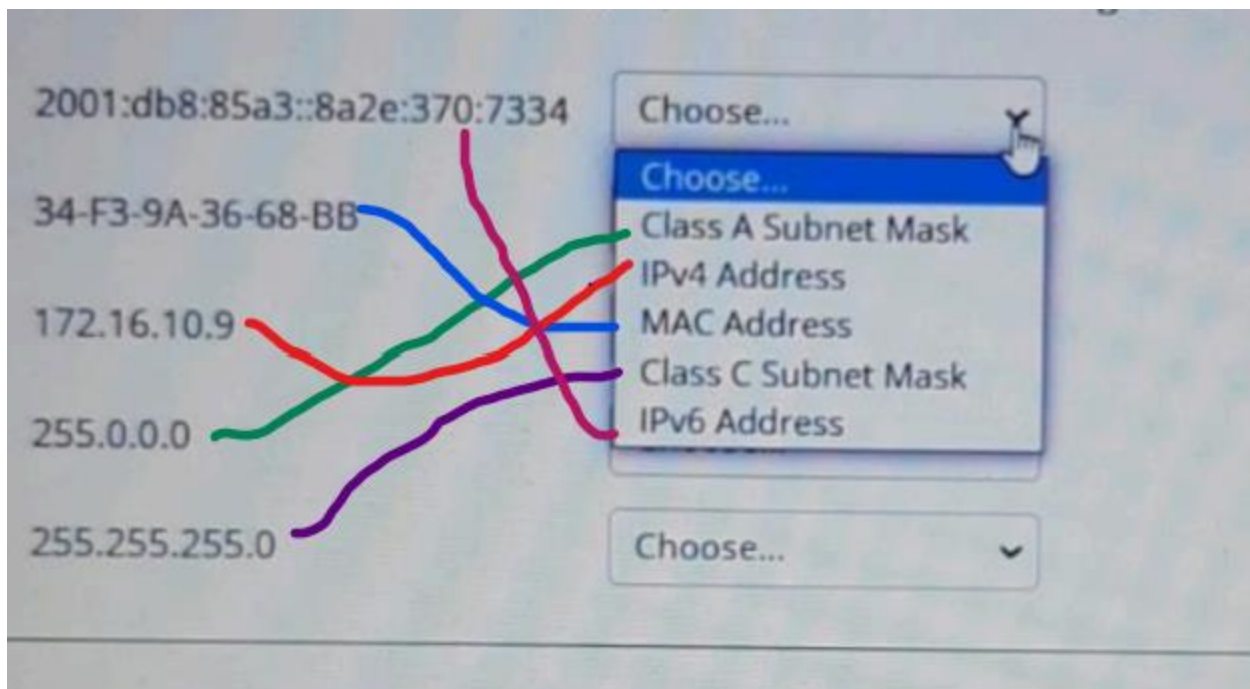
- ☐ None of the given answers are true.
- ☐ A private network is not directly connected to Internet.
- ☐ In a private network, it is mandatory to follow Internet standards.
- ☐ If a network is directly connected to Internet, it will become a part of Internet.
- ☐ A private network is a set of interconnected Intranets.

Which of the following statement is true?

Select one:

- ☐ a. Both IP and MAC addresses are virtual addresses
- ☐ b. IP Address is a physical Address and MAC Address is a logical Address
- ☐ c. IP Address is a physical Address
- ☐ d. MAC Address is logical address
- ☒ e. IP Address is a logical Address and MAC Address is a physical Address





Select the correct statement about hubs.

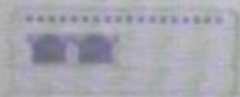
Network hub

Each computer or device connected to the hub can communicate with any other device connected to one of the hub's Ethernet ports. Hubs are similar to switches, but are not as "smart." While switches send incoming data to a specific port, hubs broadcast all incoming data to all active ports.

Select one:

- ☐ Hub always unicast messages.
- ☐ Hub always broadcast messages.
- ☒ Hub functions are similar to switch. bridge & switch similar
- ☐ None of the given statements are true.
- ☐ Hub maintains a MAC table for data forwarding switch

Which of the following statement is true regarding the given figure?



Repeater



Hub

Select one:

Select one:

- ☐ a. These devices are used to build a PAN
- ☐ b. These devices are used to connect multiple networks
- ☒ c. These devices are used to build a LAN
- ☐ d. These devices cannot be used to create a network

A television broadcast is an example of \_\_\_\_\_ transmission

Select one:

- ☐ Full duplex
- ☐ None of the given answers are correct.
- ☒ Simplex
- ☐ Automatic
- ☐ Half duplex

Select the correct order of ISO-OSI layered reference model.

Layer 7	Choose...	▼
Layer 6	Choose...	▼
Layer 5	Application Layer	▼
Layer 4	Session Layer	▼
Layer 3	Transport Layer	▼
Layer 2	Data Link Layer	▼
Layer 1	Network Layer	▼
	Physical Layer	▼
	Presentation Layer	▼
	Communication Layer	▼

Application Layer  
Presentation Layer  
Session Layer  
Transport Layer  
Network Layer  
Data Link Layer  
Physical Layer



Select the correct elements/components that make up a network.

Select one:

- ☐ Device, Medium, Message, Rules.
- ☒ Device, Medium, Message, Protocols.
- ☐ Device, Wire, Message, Rules.
- ☐ Service, Medium, Packet, Protocols.
- ☐ Service, Medium, Packet, Rules.

Which of the following are not networking devices? (Select two)

Select one or more:

- ☐ Router
- ☒ Linux
- ☐ Gateway
- ☒ ALU
- ☐ Switch



What does a Protocol define?

Select one:

- ☐ Protocol defines what data is communicated.
- ☐ Protocol defines when data is communicated.
- ☐ Protocol defines why data is communicated.
- ☒ Protocol defines how data is communicated.
- ☐ None of the mentioned is true.

What is the meaning of "Broadcasting" in Networking?



Select one:

- ☐ None of the mentioned is correct.
- ☒ Addressing a packet to all machines.
- ☐ Addressing a packet to all except a particular machine.
- ☐ Addressing a packet to a particular machine.
- ☐ Addressing a packet to group of machines.

What is **not** an advantage of a computer network?

Select one:

- ☒ Social Engineering
- ☐ Remote Information Access
- ☐ User Communication
- ☐ Resource Sharing
- ☐ Interaction among cooperative application programs

John typed 'ipconfig' command while being connected to his home WiFi and obtained the following output. What is the broadcast address of his home network? (Write in dotted decimal notation)

Wireless LAN adapter Wi-Fi:

```
Connection-specific DNS Suffix . : 
IPv6 Address. . . . . : 2402:4000:2080:76c8:74
IPv6 Address. . . . . : 2402:4000:2182:5b3f:50
IPv6 Address. . . . . : 2402:4000:2182:5b3f:74
Temporary IPv6 Address. . . . . : 2402:4000:2182:5b3f:a4e
Link-local IPv6 Address . . . . . : fe80::5095:effe:e4bc:5f
IPv4 Address. . . . . : 192.168.8.106
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : fe80::76a5:28ff:fe27:c1d
                          192.168.8.1
```

Answer: 192.168.8.255



What is the correct statement about a Collision Domain?

Select one:

- ☒ A collection of two or more computers in which, if more than one sender tries to send data simultaneously, the signals will collide in the transmission media and make all the sent information unusable.
- ☐ In a router, all ports are in a single collision domain
- ☐ A collection of two or more computers in which, if one sender tries to send data, the signal will collide in the transmission media and make the sent information unusable.
- ☐ A collection of two or more computers in which, one computer tries to send data after another computer, the signals will collide in the transmission media and make all the sent information unusable.
- ☐ None of the mentioned is true.

Match the correct threat type to the given scenario.

A Malware program attached to another program to execute a particular unwanted function on a workstation

A Denial of Service Attack (DoS) using ping command

Lots of rain causing floods and damaging the data center

Choose...

Choose...

- Network Security Threat
- Physical Security Threat
- Application Security Threat

What is a main difference between a Switch and a Bridge?

Select one:

- ☐ Bridge is a dumb device while switch is an intelligent device.
- ☐ There is no difference.
- ☐ Bridge is used to segment a LAN while Switch is used to interconnect different LANs.
- ☒ A bridge is used to connect LANs whereas a switch is used to create a LAN
- ☐ Switch is large and a bridge is small.

Match the description with the appropriate ISO-OSI Layer

Allows users to access network resources

Choose...

Organizes bits into frames which helps hop-to-hop delivery

Choose...

Translate, Encrypt & Compress Data

Data Link Layer

Presentation Layer

Network Layer

Transport Layer

Application Layer

Provide reliable process to process message delivery

For the given IP address find the following.

IP address: - 192.168.168.2

- Network address: 192 . 168 . 168 . 0
- Subnet mask: 255 . 255 . 255 . 0
- Broadcast address: 192 . 168 . 168 . 255
- 1<sup>st</sup> usable IP address: 192 . 168 . 168 . 1
- Last usable IP address: 192 . 168 . 168 . 254
- IP Address Class: C (Only type the Letter)



Complete the missing parts of the binary form of following IPv4 address

IPv4 Address: 175.16.10.135

• IPv4 Address in Binary:  . 00010000 . 00001010 .

• IP Address Class:

class A = 0 to 127  
class B = 128 to 191  
class C = 192 to 223  
class D = 224 to 239  
class E = 240 to 255

John typed 'ipconfig' command while being connected to his home WiFi and obtained the following result. How many IPv4 computers(devices) can be connected to John's home network?

wireless LAN adapter Wi-Fi:

```
Connection-specific DNS Suffix . : 
IPv6 Address. . . . . : 2402:4000:2080:76c8:74a5:2827:c1c0:4
IPv6 Address. . . . . : 2402:4000:2182:5b3f:5095:effe:e4bc:5f63
IPv6 Address. . . . . : 2402:4000:2182:5b3f:74a5:2827:c1c0:4
Temporary IPv6 Address. . . . . : 2402:4000:2182:5b3f:a4e4:9e4c:8590:cb0
Link-local IPv6 Address . . . . . : fe80::5095:effe:e4bc:5f63%4
IPv4 Address. . . . . : 192.168.8.106
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : fe80::76a5:28ff:fe27:c1c0%4
                          192.168.8.1
```

Answer:

John typed 'ipconfig' command while being connected to his home WiFi and obtained the following result. How many IPv4 computers(devices) can be connected to John's home network?

```
IPv4 Address. . . . . : 172.20.2.1(Preferred)
Subnet Mask . . . . . : 255.255.0.0
Default Gateway . . . . . : 2001:470:ed3d:1000::1
                             fe80::2e8:4cff:fe68:43d0%3
                             172.20.0.1
DHCPv6 IAID . . . . . : 60578958
DHCPv6 Client DUID. . . . . : 00-01-00-01-1E-88-A9-CE-9C-5C-8E-8F-2F-B0
DNS Servers . . . . . : 2001:470:ed3d:1000::11
                             2001:470:ed3d:1000::12
                             172.20.0.11
                             172.20.0.12
NetBIOS over Tcpip. . . . . : Enabled
Connection-specific DNS Suffix Search List :
                                             hughesnet.sg.org
```

Answer:  $2^{16} - 2 = 65534$

Match the given address to the correct address type.

FE80:CD00:0000:0CDE:1257:0000:211E:729C

Choose...

00:1B:44:11:3A:B7

Choose...

203.147.23.20

- IPv6 Address
- MAC Address
- Application Address
- Port Address
- IPv4 Address

- Network address: 172 . 18 . 0 . 0 178.18.0.0
- Subnet mask: 255 . 255 . 0 . 0 255.255.0.0
- Broadcast address: 172 . 18 . 255 . 255 172.18.255.255
- Last usable IP address: 172 . 18 . 255 . 255 172.18.255.254

Select the **incorrect** statement.

Select one:

- ☐ A WAN spans across a large geographical area. It is a geographically-dispersed collection of LANs.
- ☐ Internet is the largest WAN spanning the entire globe.
- ☐ A network spanning over a geographical area larger than a LAN, but smaller than a WAN, such as a city, is called a MAN.
- ☐ Switches are used to connect LANs to a WAN.
- ☐ A LAN connects network devices over a relatively small geographical area.

Which of the following statement is incorrect regarding the 'Internet' ?

Select one:

- ☐ a. Internet is the largest WAN topology
- ☐ b. Internet protocols are managed by IETF
- ☐ c. Internet is a collection of interconnected networks
- ☐ d. Internet is governed by International Standardization Organization (ISO)



Match the ISO-OSI Layer to correct address type used in Netw

Transport Layer

Network Layer

Data Link Layer

Choose...

Choose...

Web Address

MAC Address

Port Address

IP Address

Registry Address

What is the subnet mask of the following IP address?

IP address: - 172.16.12.4

Write your answer in dotted decimal format (e.g. 192.168.10.1)

Answer:

Complete the missing parts of the binary form of following IPv4 address:

IPv4 Address: 198.168.10.1

• IPv4 Address in Binary:  .  . 00001010 . 00000001

• How Many Hosts Can be Connected this Network:



