Started on	Thursday, 25 August 2022, 9:40 AM
State	Finished
Completed on	Thursday, 25 August 2022, 10:09 AM
Time taken	29 mins 23 secs
Marks	26.45/32.00
Grade	**4.96** out of 6.00 (**82.65**%)

Question 1

Complete

Mark 4.52 out of 5.00

Given an IP address 192.16.150.168 with a subnet mask of 255.255.255.224.

Fill in the blanks.

- The number of bits of network prefix is
  5
  .
- The network address is
  192
  .
  16
  .
  150
  .
  160
  .
- The number of host addresses (including broadcast and network addresses) is
  32
  .
- The number of host bits is
  5
  .
- The number of host addresses is
  30
  .
- The broadcast address is
  192
  .
  16
  .
  150
  .
  191
  .

- The first host address of this network is
  192
  .
  16
  .
  150
  .
  161
  .
- The last host address of this network is
  192
  .
  16
  .
  150
  .
  190
  .
- The number of network addresses in class C is
  21
  .

Question 2

Complete

Mark 3.00 out of 3.00

Determine if the following statements are TRUE or false.

- Subnetting networks can reduce the size of big network. TRUE
- Host bits are borrowed by the network to create extra subnets. TRUE
- Aggregation is used to help the problem of rapid exhaustion of IPv4 addresses. FALSE

TRUE FALSE

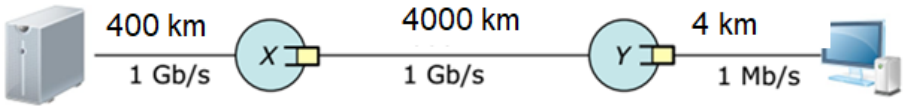
The correct answer is:
Determine if the following statements are TRUE or false.

- Subnetting networks can reduce the size of big network. [TRUE]
- Host bits are borrowed by the network to create extra subnets. [TRUE]
- Aggregation is used to help the problem of rapid exhaustion of IPv4 addresses. [FALSE]

Question 3

Complete

Mark 2.00 out of 2.00



The figure above shows a network path connecting a server to a client in optical fibers.

Fill in the blanks in the following questions:

- Assume that the speed of light is 200,000 km/s, the propagation delay for a packet going from the server to the client is 22.02 ms.
- If the packet size is 10,000 bit on all of the links, then the total transmission delay is 10.02 ms.

Question 4

Complete

Mark 3.00 out of 3.00

Which one of following statements are TRUE or FALSE about network layer and network devices?

- Router encapsulates both the frame and the packet. TRUE
- Router examines both the source and the destination IP addresses. FALSE
- Router uses checksum to ask the original host to retransmit a packet when the error is detected. FALSE
- Router will strip off the source's and destination's IP addresses and replace with the forwarding interface's and the next hop interface's IP addresses. FALSE
- Router de-encapsulates the packet, selects the appropriate path, and encapsulates the packet to forward it toward the destination host. TRUE

FALSE TRUE

The correct answer is:
Which one of following statements are TRUE or FALSE about network layer and network devices?

- Router encapsulates both the frame and the packet. [TRUE]
- Router examines both the source and the destination IP addresses. [FALSE]
- Router uses checksum to ask the original host to retransmit a packet when the error is detected. [FALSE]
- Router will strip off the source's and destination's IP addresses and replace with the forwarding interface's and the next hop interface's IP addresses. [FALSE]
- Router de-encapsulates the packet, selects the appropriate path, and encapsulates the packet to forward it toward the destination host. [TRUE]

Question 5

Complete

Mark 2.00 out of 2.00

Refer to the exhibit.

What is the most appropriate summarization for these routes or the aggregate address?

The aggregation address is

172

.

1

.

4

.

0

/

22

.

Question 6

Complete

Mark 3.09 out of 4.00

You are given a Class B network (172.16.0.0) and you want 500 subnetworks where each network needs 50 host addresses.

Answer the following questions.

- The subnet mask of subnetwork is /
  26
  .
- Consider the first usable subnetwork:
  - The network address is
    172
    .
    16
    .
    0
    .
    0
    /
    26
    .
  - The broadcast address is
    172
    .
    16
    .
    127
    .
    192
    /
    26
    .
- Consider the fifth usable subnetwork:
  - The network address is
    172
    .
    16
    .
    4
    .
    0
    /

26

.

- The broadcast address is

172

.

16

.

127

.

192

/

26

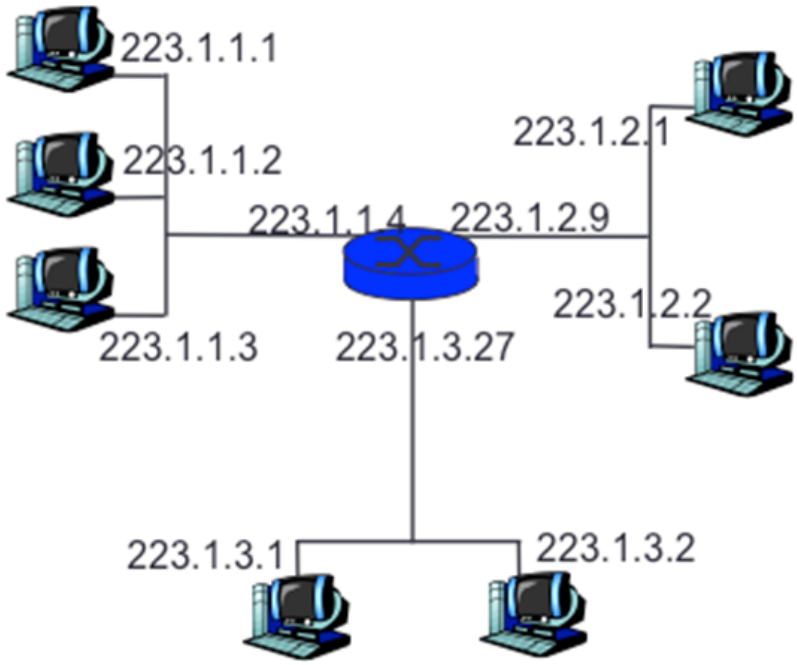
.

- Are there any remaining addresses? yes

Question 7

Complete

Mark 1.00 out of 2.00

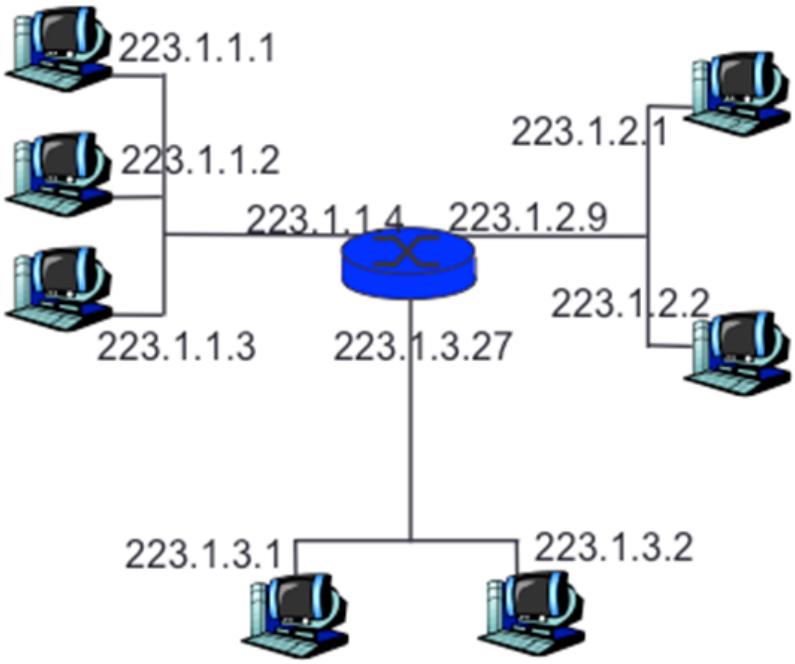


Refer to the exhibit. Determine whether the following statements TRUE or FALSE.

- When the computer 223.1.1.1 sends a message to the router R 223.1.3.27, the next hop is 223.1.1.4. TRUE
- When the router R sends a message to the router R 223.1.3.27, metric is 1. TRUE
- When the computer 223.1.3.2 sends a message to the 223.1.1.1, the next hop is 223.1.1.4. FALSE
- When the computer 223.1.1.2 sends a message to the computer 223.1.2.2, the metric is 2. FALSE

FALSE TRUE

The correct answer is:



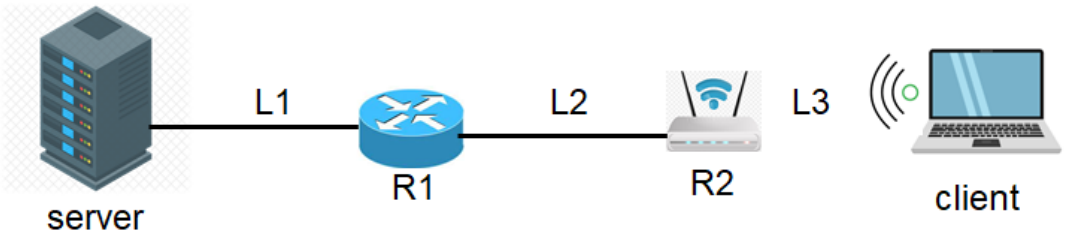
Refer to the exhibit. Determine whether the following statements TRUE or FALSE.

- When the computer 223.1.1.1 sends a message to the router R 223.1.3.27, the next hop is 223.1.1.4. [TRUE]
- When the router R sends a message to the router R 223.1.3.27, metric is 1. [FALSE]
- When the computer 223.1.3.2 sends a message to the 223.1.1.1, the next hop is 223.1.1.4. [FALSE]
- When the computer 223.1.1.2 sends a message to the computer 223.1.2.2, the metric is 2. [TRUE]

Question 8

Complete

Mark 4.00 out of 4.00



Refer to the exhibit. A web server requires to send an IP datagram 4,000 bytes long including IP header without options to a web client across routers R1 and R2. MTUs of the data link layers for L1, L2, and L3 are 1500, 660, and 1500 Bytes. Answer the following questions below.

- The data size of IP datagram from this web server is
  3980
  bytes.
- The data size of IP datagram over links L1, L2, and L3 are
  1480
  ,
  640
  , and
  1480
  respectively.
- The number of fragments arrived at Routers R1, R2 and the web client are
  3
  ,
  7
  , and
  3
  respectively.
- The offsets of the last fragment arrived at the routers R1 and R2 are
  370
  ,
  450
  respectively.

Question 9

Complete

Mark 2.50 out of 3.00

Consider IPv4 classful address scheme, determine if the following statements are TRUE or false.

- Loopback IP addresses are in class B. FALSE
- The number of host addresses in class B (not including network and broadcast addresses) is 2^16 - 2. TRUE
- 247.56.128.0 is in class E. TRUE
- The number of addresses in class D is 2^28. TRUE
- The number of networks allowed under class C addresses is 2^21. FALSE
- 172.16.0.0 is a private network in class C. FALSE

FALSE TRUE

The correct answer is:
Consider IPv4 classful address scheme, determine if the following statements are TRUE or false.

- Loopback IP addresses are in class B. [FALSE]
- The number of host addresses in class B (not including network and broadcast addresses) is 2^16 - 2. [TRUE]
- 247.56.128.0 is in class E. [TRUE]
- The number of addresses in class D is 2^28. [TRUE]
- The number of networks allowed under class C addresses is 2^21. [TRUE]
- 172.16.0.0 is a private network in class C. [FALSE]

Question 10

Complete

Mark 0.67 out of 2.00

Match each IPv4 address to the appropriate address category.

- 191.191.1.200/29 Broadcast
- 10.10.10.250/30 Host
- 172.172.172.7/29 Network

Network Broadcast Host

The correct answer is:
Match each IPv4 address to the appropriate address category.

- 191.191.1.200/29 [Network]
- 10.10.10.250/30 [Host]
- 172.172.172.7/29 [Broadcast]

Question 11

Complete

Mark 0.67 out of 2.00

```
Active Routes:
Network Destination        Netmask          Gateway       Interface  Metric
          0.0.0.0          0.0.0.0      192.168.0.1    192.168.0.103     35  L1
        127.0.0.0        255.0.0.0         On-link         127.0.0.1    331  L2
        127.0.0.1  255.255.255.255         On-link         127.0.0.1    331  L3
  127.255.255.255  255.255.255.255         On-link         127.0.0.1    331  L4
      192.168.0.0    255.255.255.0         On-link     192.168.0.103    291  L5
    192.168.0.103  255.255.255.255         On-link     192.168.0.103    291  L6
    192.168.0.255  255.255.255.255         On-link     192.168.0.103    291  L7
     192.168.56.0    255.255.255.0         On-link      192.168.56.1    281  L8
     192.168.56.1  255.255.255.255         On-link      192.168.56.1    281  L9
   192.168.56.255  255.255.255.255         On-link      192.168.56.1    281  L10
        224.0.0.0        240.0.0.0         On-link         127.0.0.1    331  L11
        224.0.0.0        240.0.0.0         On-link      192.168.56.1    281  L12
        224.0.0.0        240.0.0.0         On-link     192.168.0.103    291  L13
  255.255.255.255  255.255.255.255         On-link         127.0.0.1    331  L14
  255.255.255.255  255.255.255.255         On-link      192.168.56.1    281  L15
  255.255.255.255  255.255.255.255         On-link     192.168.0.103    291  L16
```

Refer to the exhibit. Which following statements are TRUE of FALSE about routing table?

- The interface 192.168.0.103 is used to reach 192.168.0.10. FALSE
- The default gateway of this system is in the same network as 192.168.0.0/24. TRUE
- The gateway 192.168.0.1 is used to reach every system. TRUE

TRUE FALSE

The correct answer is:

```
Active Routes:
Network Destination        Netmask          Gateway       Interface  Metric
          0.0.0.0          0.0.0.0      192.168.0.1    192.168.0.103     35  L1
        127.0.0.0        255.0.0.0         On-link         127.0.0.1    331  L2
        127.0.0.1  255.255.255.255         On-link         127.0.0.1    331  L3
  127.255.255.255  255.255.255.255         On-link         127.0.0.1    331  L4
      192.168.0.0    255.255.255.0         On-link     192.168.0.103    291  L5
    192.168.0.103  255.255.255.255         On-link     192.168.0.103    291  L6
    192.168.0.255  255.255.255.255         On-link     192.168.0.103    291  L7
     192.168.56.0    255.255.255.0         On-link      192.168.56.1    281  L8
     192.168.56.1  255.255.255.255         On-link      192.168.56.1    281  L9
   192.168.56.255  255.255.255.255         On-link      192.168.56.1    281  L10
        224.0.0.0        240.0.0.0         On-link         127.0.0.1    331  L11
        224.0.0.0        240.0.0.0         On-link      192.168.56.1    281  L12
        224.0.0.0        240.0.0.0         On-link     192.168.0.103    291  L13
  255.255.255.255  255.255.255.255         On-link         127.0.0.1    331  L14
  255.255.255.255  255.255.255.255         On-link      192.168.56.1    281  L15
  255.255.255.255  255.255.255.255         On-link     192.168.0.103    291  L16
```

Refer to the exhibit. Which following statements are TRUE of FALSE about routing table?

- The interface 192.168.0.103 is used to reach 192.168.0.10. [TRUE]
- The default gateway of this system is in the same network as 192.168.0.0/24. [TRUE]
- The gateway 192.168.0.1 is used to reach every system. [FALSE]