CS 4471 Midterm Spring 2022

Due Mar 16 at 8:45pm **Points** 100 **Questions** 26
Available Mar 16 at 6pm - May 20 at 11:59pm 2 months **Time Limit** 100 Minutes

Instructions

Answer each of the following questions. You have 100 minutes to complete this midterm exam. When you have finished answering all questions, make sure that you click "Submit Quiz" before the time limit expires.

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	100 minutes	47 out of 100 *

* Some questions not yet graded

ⓘ Correct answers are hidden.

Score for this quiz: **47** out of 100 *
Submitted Mar 16 at 7:47pm
This attempt took 100 minutes.

Question 1 — 2 / 2 pts

If a communication protocol suite is represented by the ISO 7-layer reference model, at what layer are forwarding decisions made by a Cisco 2960 switch?

- Physical
- Transport
- (selected) Datalink
- Network
- Application

Question 2

2 / 2 pts

If a datagram fragment is lost,

- (selected) the source computer has to resend the entire datagram to which the lost fragment belonged
- the source computer has to resend only the lost fragment
- the network software on a router can detect a lost fragment and retransmit the lost fragment

Incorrect

Question 3

0 / 2 pts

A collision in a 10BaseT Ethernet network is:

- (●) repeated across other ports on an Ethernet switch using store-and-forward switching
- ( ) usually propagated from one router interface to another router interface
- ( ) repeated across all of the other connected ports of a shared Ethernet hub.
- ( ) always isolated and cannot be detected by other machines in the same network

Question 4

2 / 2 pts

How can the amount of broadcasts on a crowded segment of your Ethernet network be decreased?

- ( ) Install fiber optic cabling
- ( ) Divide the segment into two segments, and join them with an Ethernet switch
- ( ) Divide the segment into two segments, and join them with an Ethernet hub
- (●) Divide the segment into two segments, and join them with a router

Question 5

2 / 2 pts

Which protocol will facilitate automatic assignment of IP address, subnet mask, default gateway and DNS information to a computer?

- NTP
- DHCP
- ARP
- ICMP
- DNS

Incorrect

Question 6

0 / 2 pts

Flow control of IP datagrams sent between a web browser and a remote web server usually occur at the

- IP layer software module on the computer sending or receiving the datagrams.
- IP layer software module on a router that is forwarding the datagrams.

- TCP layer software module on the computer sending or receiving the datagrams.
- (selected) TCP layer software module on a router that is forwarding the datagrams.

Incorrect

Question 7

0 / 2 pts

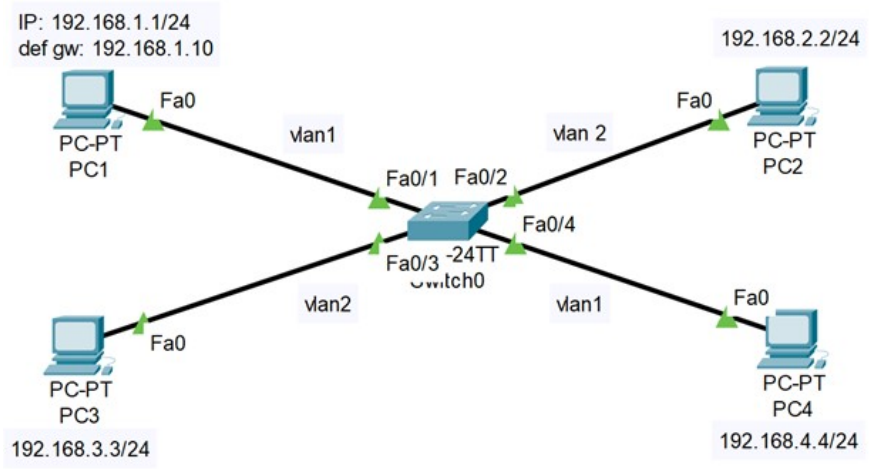
What type of cable is used to provide connectivity between a computer and the console port on a switch?

- fiber optic cable
- cross-over Ethernet cable
- (selected) straight-through Ethernet cable
- rolled (rollover) serial cable

Incorrect

Question 8

0 / 2 pts



What will happen if PC1 (IP 192.168.1.1 netmask 255.255.255.0) tries to ping PC4 (IP 192.168.4.4 netmask 255.255.255.0)?

- (●) PC1 will send ARP broadcast request for PC4's mac address
- ( ) PC1 will send ARP broadcast request for its default gateway's mac address
- ( ) Ethernet Switch0 will forward ARP broadcast request from PC1 to Fa0/2, Fa0/3, and Fa0/4

Question 9

2 / 2 pts

Which of the following protocols is used to resolve an IP address to its associated physical address?

- TFTP
- ARP
- DNS
- NTP
- SNMP

Incorrect

Question 10

0 / 2 pts

Which of the following is true about IP routing?

- The layer-2 frame header remains the same when IP packet is forwarded
- The destination IP address changes when IP packet is forwarded
- The TTL field changes when IP packet is forwarded
- The source IP address changes when IP packet is forwarded

Question 11

2 / 2 pts

Reassembly of fragmented packets is performed at of which OSI layer?

- layer 5 (session)
- layer 4 (transport)
- (selected) layer 3 (network)
- layer 2 (datalink)

Question 12

2 / 2 pts

If a host on a subnet has the address 192.168.1.30/26, what is the subnet's broadcast address?

- 192.168.1.255
- 192.168.1.127
- (selected) 192.168.1.63
- 192.168.1.31
- 192.168.1.95

Question 13

2 / 2 pts

Which layer of TCP/IP model handles retransmission of lost packets?

- Application
- Data Link
- Transport
- Internet

Question 14

2 / 2 pts

Which of the following Cisco console prompts indicates that you are in global configuration mode?

- Router#
- Router(config)#
- Router(global)#
- Router>

Incorrect

Question 15

0 / 2 pts

To send an Ethernet frame to a destination server that is two router hops away, your client computer must know the Ethernet address of the server.

- never true
- Always true
- Sometimes true

Question 16

2 / 2 pts

If you wanted to take a class C network ID and subnet it into 5 subnets with each subnet accommodating 20 computers, which subnet mask would you use?

- 255.255.255.248
- 255.255.255.240
- 255.255.255.224
- 255.255.255.192

Question 17

2 / 2 pts

How many bytes are there in an Ethernet address?

- (selected) 6
- 4
- 2
- 8

Incorrect

Question 18

0 / 2 pts

If a receiver's input buffer is full, which of the following fields will be used to inform the sender not to send any more data?

- Sequence number
- Identification
- (selected) Acknowledgement number
- Window Size

- TTL

Question 19

2 / 2 pts

Which of the following items does a layer-2 Ethernet switch populate into its address table upon receiving a frame from an unknown source?

- destination MAC address
- source IP address
- destination IP address
- source MAC address

Question 20

2 / 2 pts

A Cisco switch has four different memory storage areas used to store various files and the IOS. In which memory storage area is the startup-configuration file stored and saved?

- ROM

- RAM
- NVRAM
- FLASH

Incorrect

Question 21

0 / 15 pts

Suppose that an organization has taken a private class B network 172.16.0.0/16 and broken it up to multiple subnets using variable length subnet masks. If a host has IP address 172.16.40.10 and subnet mask of 255.255.240.0,

The subnet to which the host belongs is 286.890.393.6 in dotted decimal form.

The broadcast address for this subnet in dotted decimal form is 287.309.823.9 (Note: not 255.255.255.255).

The number of of hosts can this subnet accommodate is 1 (do not include reserved IP addresses).

The first (lowest) IP address that can be assigned to a host in this subnet is 286.996.275.3 in dotted decimal form.

The last (highest) IP address that can be assigned to a host in this subnet is 323.223.603.0 in dotted decimal form.

Answer 1:

286.890.393.6

Answer 2:

287.309.823.9

Answer 3:

1

Answer 4:

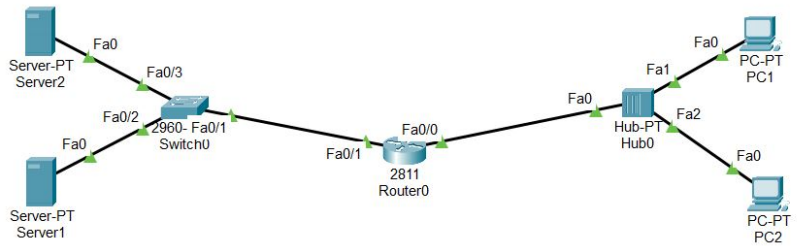
286.996.275.3

Answer 5:

323.223.603.0

Question 22

9 / 9 pts



In the above network, assume that the switch ports are all in vlan 1.

How many broadcast domains are there? 2

How many collision domains are there 4

How many subnets should exist? 2

Answer 1:

2

Answer 2:

4

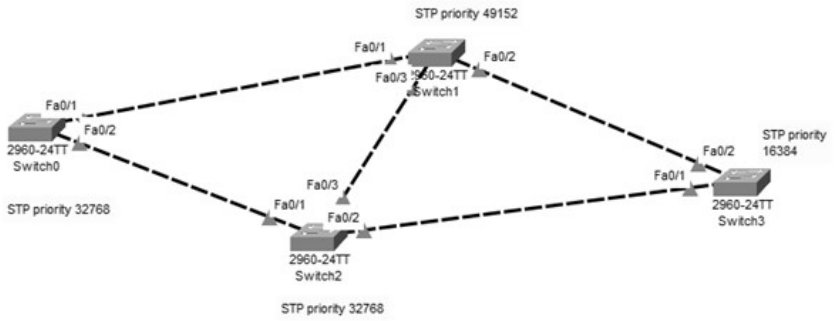
Answer 3:

2

Partial

Question 23

6 / 12 pts



In the above network containing 4 switches running **Spanning Tree Protocol**,

Which switch will be the root bridge? [Select]

How many root port(s) are there? [Select]

How many port(s) will STP place into blocking state? [Select]

How many of the switch ports will become STP designated ports? [Select]

Answer 1:

switch 3

Answer 2:

1

Answer 3:

2

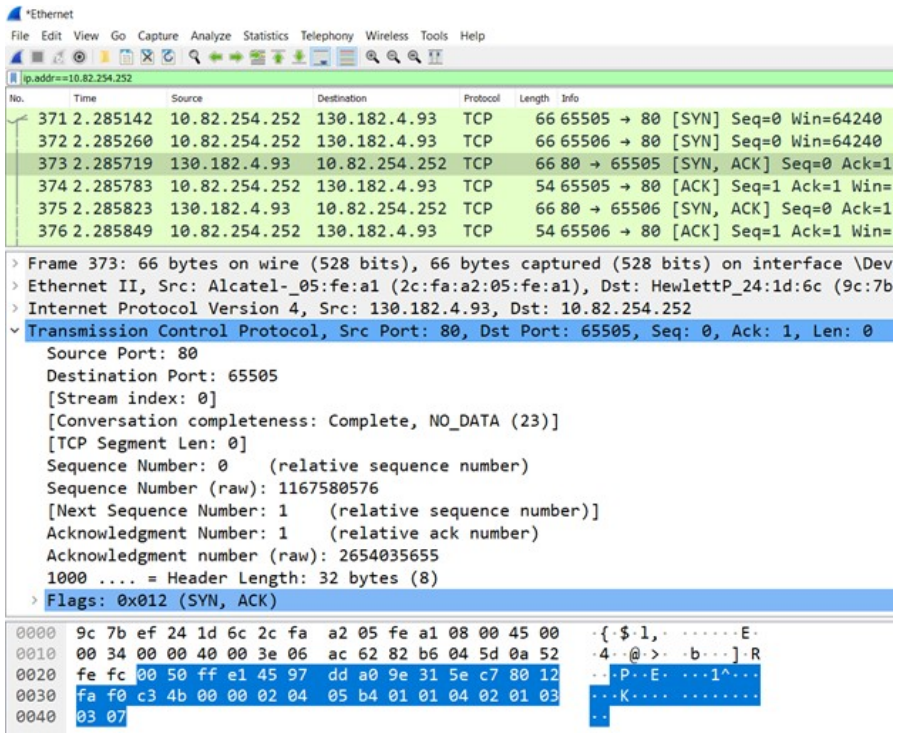
Answer 4:

4

Partial

Question 24

6 / 9 pts



For Ethernet frame number 373 in this Wireshark packet capture:

What is the TCP source port number? 80

What part of the TCP 3-way handshake is this frame? [Select]

What is the actual raw (not relative) initial sequence number in hexadecimal?

[Select]

Answer 1:

80

Answer 2:

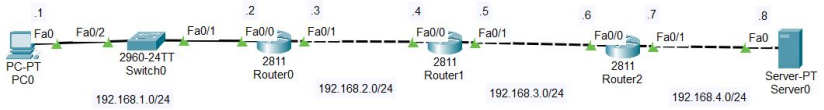
fourth packet

Answer 3:

4597dda0

Question 25

Not yet graded / 12 pts



For the above network containing three routers,

a. Write down all Cisco IOS commands needed to properly configure both fast Ethernet interfaces on **Router1** with appropriate IP address shown and enable the interfaces. Assume that all other two routers are already pre-configured.

b. Write down all Cisco IOS static route commands needed to properly configure **Router1** so that it knows how to forward IP packets to PC0 and Server0

Your Answer:

Router(config-if)#exit

Router(config)#interface FastEthernet0/1

Router(config-if)#no shutdown

Router(config-if)#

%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#

Router(config-if)#int en0/0

^

% Invalid input detected at '^' marker.

Router(config-if)#int 0/0

^

% Invalid input detected at '^' marker.

```
Router(config-if)#

Router(config-if)#

Router(config-if)#exit

Router(config)#interface FastEthernet0/1

Router(config-if)#int fe0/0

^

% Invalid input detected at '^' marker.


Router(config-if)#interface fastethernet0/0

Router(config-if)#ip address 192.1683.0/24 255.255.255.0

^

% Invalid input detected at '^' marker.


Router(config-if)#ip address 192.1683.0/ 255.255.255.0

^

% Invalid input detected at '^' marker.


Router(config-if)#ip address 192.1683.0 255.255.255.0

^

% Invalid input detected at '^' marker.
```

Router(config-if)#ipaddr 192.168.3.0 255.255.255.0

^

% Invalid input detected at '^' marker.

Router(config-if)#ip address 192.168.3.0 255.255.255.0

Bad mask /24 for address 192.168.3.0

Router(config-if)#

Unanswered

Question 26

Not yet graded / 3 pts

What changes would you like to see which you feel would help improve your learning experience in this course?

Your Answer:

Quiz Score: **47** out of 100