Assignment 5

Due Nov 30 at 10:59am **Points** 15 **Questions** 15 **Time Limit** None

Instructions

While working on this assignment, you certify that you have neither given help to nor received help from any other person.

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	10,541 minutes	11.96 out of 15

Submission Details:

Time:	10,541 minutes
Current Score:	11.96 out of 15
Kept Score:	11.96 out of 15

Score for this quiz: **11.96** out of 15
Submitted Dec 14 at 6:59pm
This attempt took 10,541 minutes.

Question 1 — 1 / 1 pts

Consider a router that interconnects three subnets: Subnet 1, Subnet 2, and Subnet 3. Suppose all of the interfaces in each of these three subnets are required to have the prefix 223.1.17/24.

The network address (of the form a.b.c.d/x) of Subnet 3 that supports at least 12 interfaces is given by:

- ○ 223.1.17.0/26
- ○ 223.1.17.0/24
- Correct! ◉ 223.1.17.192/28
- ○ 223.1.17.128/25

Question 2 — 1 / 1 pts

What is the dotted decimal address equivalent of the 32-bit binary IP address:
11011111 00000001 00000011 00011100

Write the address in the form a.b.c.d

223.1.3.28

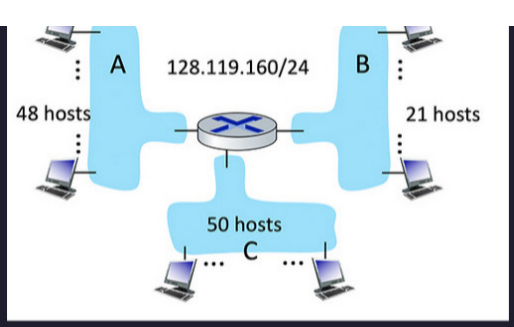
Answer 1:

Correct! 223.1.3.28

Question 3 — 1 / 1 pts

Consider the three subnets below, each in the larger 128.119.160/24 network. The following questions are concerned with subnet addressing. Answer each question by selecting a matching answer. Each answer can be used to answer only *one* question.

[Note: You can find more examples of problems similar to this here]



Correct!

What is the maximum number of hosts possible in the larger 128.119.160/24 network?

256

Correct!

How many bits are needed to be able to address all of the host in subnet A?

6

Correct!

Suppose that subnet A has a CIDRized subnet address range of 128.119.160.128/26 (hint: 128 is 1000 0000 in binary); Subnet B has an CIDRied subnet address range of 128.119.160.64/26. We now want a valid CIDRized IP subnet address range for subnet C of the form 128.119.160.x/26. What is a valid value of x?

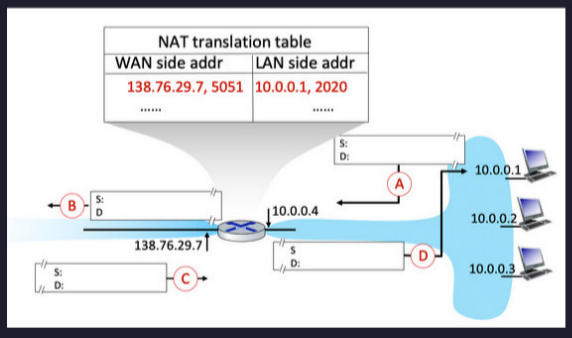
0

Nice! This answer is correct

Question 4

0 / 1 pts

Consider the following scenario in which host 10.0.0.1 is communicating with an external web server at IP address 128.119.40.186. The NAT table shows the table entry associated with this TCP flow. What are the source and destination IP address and port numbers at point *D*?



You Answered

The source IP address is:

10.0.0.1

128.119.40.186

You Answered

The destination IP address is:

128.119.40.186

10.0.0.1

You Answered | The source port number is: | 2020

80

You Answered | The destination port number is: | 80

2020

Other Incorrect Match Options:

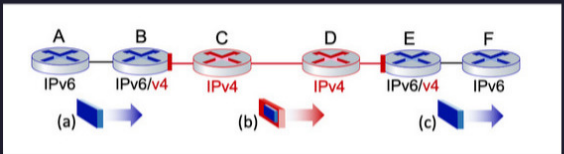
- 138.76.29.7
- 10.0.0.4
- 5051

Not quite. This answer is incorrect.

Question 5

1 / 1 pts

Consider the mixed IPv4/IPv6 network shown below, where an IPv4 tunnel exists between IPv6 routers B and E. Suppose that IPv6 router A sends a datagram to IPv6 router F. IPv6 datagrams are shown in blue; the IPv4 datagram is in red (containing the encapsulated IPv6 datagram in blue).



Perform the matching below to indicate the datagram field value and type at point (a).

Correct! | At point (a), the IP version field in the datagram is: | IPv6

Correct! | At point (a), the source IP address is that of host: | A

Correct! | At point (a), the destination IP address is that of host: | F

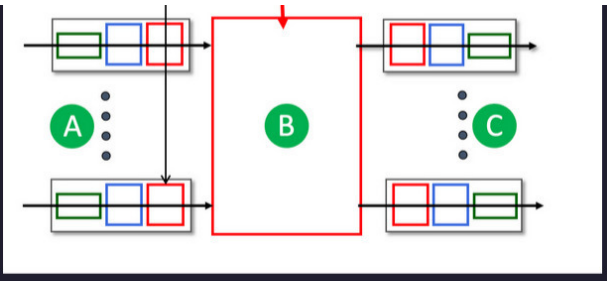
Correct! | At point (a), the number of bits in the destination IP address is: | 128

Nice! This answer is correct.

Question 6

0.75 / 1 pts

Match the names of the principal router components (A,B,C,D below) with their function and whether they are in the network-layer data plane or control plane.



Correct! (A) are ... input ports, operating prim

Correct! (B) is ... the switching fabric, operat

Correct! (C) are ... output ports, operating prir

You Answered (D) is ... the switching fabric, operat

input ports, operating primarily in the data plane.

Question 7

1 / 1 pts

Consider the following forwarding table below. Indicate the output to link interface to which a datagram with the destination addresses below will be forwarded under longest prefix matching.

Destination Address Range	Link interface
11001000 00010111 00010*** ********	0
11001000 00010111 00011000 ********	1
11001000 00010111 00011*** ********	2
otherwise	3

Correct! 11001000 00010111 00010010 10101101 — This is the destination addr

Correct! 11001000 00010111 00011000 00001101 — This is the destination addr

Correct! 11001000 00010111 00011001 11001101 — This is the destination addr

Correct! 10001000 11100000 00011000 00001101 — This is the destination addr

Other Incorrect Match Options:

- This is the second destination address in the list that maps to output port 4.

Nice! This answer is correct.

Question 8

1 / 1 pts

Suppose a datagram is switched through the switching fabric and arrives to its appropriate output to find that there are no free buffers. In this case:

The packet will be dropped (lost).

Another packet will be removed (lost) from the buffer to make room for this packet.

The packet will be sent back to the input port.

Correct!

The packet will either be dropped or another packet will be removed (lost) from the buffer to make room for this packet, depending on policy. But the packet will definitely not be be sent back to the input port.

Nice! Your answer is correct.

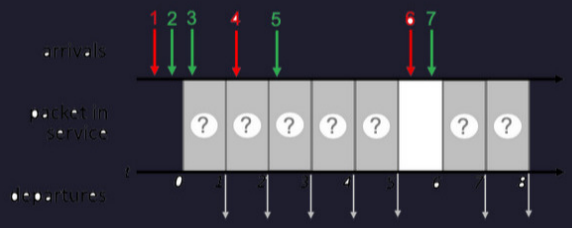
Nice! Your answer is correct.

Question 9

1 / 1 pts

Consider the pattern of red and green packet arrivals to a router's output port queue, shown below. Suppose each packet takes one time slot to be transmitted, and can only begin transmission at the beginning of a time slot after its arrival. Indicate the sequence of departing packet numbers (at t = 1, 2, 3, 4, 5, 7, 8) under **round robin scheduling**, where red starts a round if there are both red and green packets ready to transmit after an empty slot.

Which of the following represents a 7 ordered digits of the departing packets? (each digit corresponds to the packet number of a departing packet).



1423567

1324567

1432567

Correct!

1243567

Nice, your answer is correct.

Nice, your answer is correct.

Question 10

0.88 / 1 pts

Match each of the following fields in the IP header with its description, function or use.

You Answered

Version field — This field contains ECN and

This field contains a UDP or TCP segment, for example.

Correct!	Type-of-service field	This field contains ECN anc
Correct!	Fragmentation offset field	This field is used for datagr
Correct!	Time-to-live field	The value in this field is dec
Correct!	Header checksum field	This field contains the Inter
Correct!	Upper layer field	This field contains the "prot
Correct!	Payload/data field	This field contains a UDP o
Correct!	Datagram length field.	This field indicates the tota

Question 11

1 / 1 pts

What is meant by an IP subnet? (Check zero, one or more of the following characteristics of an IP subnet).

Correct!
- [x] A set of devices that have a common set of leading high order bits in their IP address.

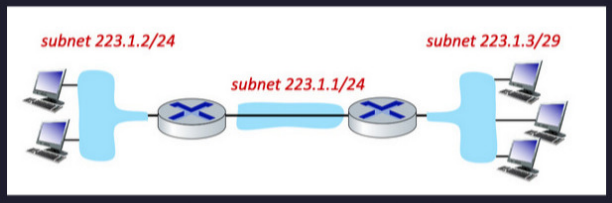
Correct!
- [x] A set of device interfaces that can physically reach each other without passing through an intervening router.
- [ ] A set of devices that always have a common first 16 bits in their IP address.
- [ ] A set of devices all manufactured by the same equipment maker/vendor.

Nice! This answer is correct.

Question 12

1 / 1 pts

Consider the three subnets in the diagram below.



What is the maximum # of interfaces in the 223.1.3/29 network?

- ○ 2**32
- ○ 128
- ○ There's no a priori limit on the number of interfaces in this subnet.

Correct!
- ◉ 8

Nice! Your answer is correct.

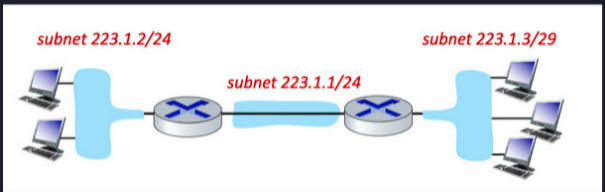
- ○ Three hosts, as shown in the figure.

Nice! Your answer is correct.

Question 13

0.33 / 1 pts

Consider the three subnets in the diagram below.



Which of the following addresses can ***not*** be used by an interface in the 223.1.3/29 network? Check all that apply.

Correct!
- [x] 223.1.2.6
- [ ] 223.1.3.6

Correct Answer
- [ ] 223.1.3.16

Correct Answer
- [ ] 223.1.3.28
- [ ] 223.1.3.2

Question 14

1 / 1 pts

What is the purpose of the Dynamic Host Configuration Protocol?

- To configure the interface speed to be used, for hardware like Ethernet, which can be used at different speeds.

Correct!
- (•) To obtain an IP address for a host attaching to an IP network.

Nice! Your answer is correct.

- To get the 48-bit link-layer MAC address associated with a network-layer IP address.
- To configure the set of available open ports (and hence well-known services) for a server.

Nice! Your answer is correct.

Question 15

0 / 1 pts

Suppose two packets arrive to two different input ports of a router at exactly the same time. Also suppose there are no other packets anywhere in the router and the two packets are to be forwarded to the same output port. Is it possible to forward the two packets through the switch fabric at the same time when the fabric uses a crossbar?

You Answered
- (•) Yes

You Answered
- (•) Yes

Forwarding rule is only based on destination address, so two packets going to the same destination cannot be forwarded at the same time.

Correct Answer

○ No

Quiz Score: **11.96** out of 15

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