

**Exercise 5 (Chap 5)**

Name: 任皓天

每个题目有10分，最多可以尝试3次，以最后一次回答为准，客观题答完后会自动批改，并且给出标准答案。题目类型为Essay的不会自动批改，分数由老师阅后再给

#1 Points possible: 8

**Q.** Convert the IP address whose hexadecimal representation is C22F1582 to dotted decimal notation.

194.47.21.130

#2 Points possible: 10

**Q.** A router has the following (CIDR) entries in its routing table:

Address/mask	Next hop
135.46.56.0/22	211.90.0.1
135.46.60.0/22	159.48.0.1
192.53.40.0/23	192.188.0.1
default	220.20.0.1

For each of the following IP addresses, what does the router do if a packet with that address arrives?

**A.** Write correct IP address of next hop:

No.	IP	Next hop
(a)	135.46.63.10	159.48.0.1
(b)	135.46.57.14	211.90.0.1
(c)	135.46.52.2	220.20.0.1
(d)	192.53.40.7	192.188.0.1
(e)	192.53.56.7	220.20.0.1

#3 Points possible: 5

**Q.** A network on the Internet has a subnet mask of 255.255.240.0. What is the maximum number of address can be used for a single host?

A. \_\_\_\_\_

#4 Points possible: 12

**Q.** Suppose that host A is connected to a router R1, R1 is connected to another router, R2, and R2 is connected to host B. Suppose that a TCP message that contains 900 bytes of data and 20 bytes of TCP header is passed to the IP code at host A for delivery to B. Show the Total length, MF, and Fragment offset fields of the IP header in each packet transmitted over the three links.

Assume that link A-R1 can support a maximum frame size of 1024 bytes including a 14-byte frame header, link R1-R2 can support a maximum frame size of 512 bytes, including an 8-byte frame header, and link R2-B can support a maximum frame size of 512 bytes including a 12-byte frame header.

**A.** Fill your answer in the blank

link	Packet#	Total length	MF	Fragment offset
A->R1	1	940	0	0
R1->R2	1	500	1	0
	2	460	0	60
R2->B	1	500	1	0
	2	460	0	60

#5 Points possible: 10

**Q.** A large number of consecutive IP address are available starting at 198.16.0.0. Suppose that four organizations, A, B, C, and D, request 4000, 2000, 4000, and 8000 addresses, respectively, and in that order. For each of these, give the first IP address assigned, the last IP address assigned, and the mask in w.x.y.z/s notation.

**A.** Fill your answer in the blank

Org#	First IP	Last IP	net/mask
A	198.16.0.0	198.16.15.255	198.16.0.0/20
B	198.16.16.0	198.16.23.255	198.16.16.0/21
C	198.16.32.0	198.16.47.255	198.16.32.0/20
D	198.16.64.0	198.16.95.255	198.16.64.0/19

#6 Points possible: 10

How many bits does the address of IPv6 have?

☐ 32

☐ 64

☒ 128

☐ 256

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#7 Points possible: 5

Without using IPv6, which can solve the problem of running out of IP addresses?

- ☐ class full addressing
- ☐ subnetting
- ☐ class addressing
- ☒ NAT

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#8 Points possible: 5

What is the valid host range for subnet 172.16.10.16, mask 255.255.255.240?

- ☐ 172.16.10.20 through 172.16.10.22
- ☐ 172.16.10.16 through 172.16.10.23
- ☐ 172.16.10.17 through 172.16.10.31
- ☒ 172.16.10.17 through 172.16.10.30

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#9 Points possible: 5

The checksum in the IP packet covers \_\_\_\_\_.

- ☒ just the header
- ☐ just the data
- ☐ the header and the data
- ☐ just the source and destination addresses

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#10 Points possible: 5

A router has two IP interfaces, one IP address is 192.168.11.25/24, and the other IP address is \_\_\_\_\_ (assume use same subnet mask).

- ☐ 192.168.13.0
- ☐ 192.168.11.26
- ☐ 192.168.13.255
- ☒ 192.168.13.26

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#11 Points possible: 5

Suppose two hosts A and B have IP address 10.10.1.10 and 10.10.2.10 respectively. If they are in a same subnet, what is the subnet mask?

- ☐ 255.0.0.0
- ☒ 255.255.0.0
- ☐ 255.255.255.0
- ☐ 255.255.255.255

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#12 Points possible: 5

Which IP address is a loopback address?

- ☐ 1.0.0.1
- ☐ 192.168.0.1
- ☒ 127.0.0.1
- ☐ 172.0.0.1

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#13 Points possible: 5

Which is not the private address that will not appear in Internet datagram?

- ☐ 10.3.18.82
- ☐ 192.168.8.3
- ☐ 10.214.0.1

☒ 172.33.8.8

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#14 Points possible: 5

Which protocol is used in command “ping 10.214.8.9”?

- ☐ ARP
  - ☒ ICMP
  - ☐ RARP
  - ☐ ECHO
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#15 Points possible: 5

Which is not a legal IPV6 address?

- ☐ 8300::1382:4567:89AB:CDEF
  - ☒ 1382:4567:89AB:CDEF
  - ☐ ::211.31.20.46
  - ☐ 2A43:0000:0000:0000:0123:4567:89AB:CDEF
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