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1. In subnetting, the number of addresses in each subnet must _____. **(1)**

   1) be a power of 2

   2) be a multiple of 128

   3) be divisible by 128

   4) None of the choices are correct

2. DHCP is a (an) _____ layer protocol. **(1)**

   1) application

   2) transport

   3) network

   4) datalink

3. _____ allows a site to use a set of private addresses for internal communication and a set of global Internet addresses for communication with the rest of the world. **(2)**

   1) DHCP

   2) NAT

   3) ICMP

   4) None of the choices are correct

4. When two computers using IPv6 want to communicate but the packet must pass through an IPv4 region, which transition strategy should be used? **(1)**

   1) tunneling

   2) header translation

   3) either tunneling or header translation

   4) None of the choices are correct

5. Visit a host that uses DHCP to obtain its IP address, network mask, default router, and IP address of its local DNS server. List these values.

   IP address : 192.168.0.11
   Network mask : 255.255.255.0
   Default Router : 192.168.0.1
   Local DNS server : 210.220.163.82

6. Suppose you purchase a wireless router and connect it to your cable modem. Also suppose that your ISP dynamically assigns your connected device (that is, your wireless router) one IP address. Also suppose that you have five PCs at home that use 802.11to wirelessly connect to your wireless router. How are IP addresses assigned to the five PCs? Does the wireless router use NAT? Why or why not?

DHCP가 5개의 PC와 라우터 인터페이스에 IP를 할당하는 데 사용된다.
무선 라우터도 NAT을 사용한다. 여러 대의 호스트가 하나의 공인 IP를 사용하기 위해 공유기가 ISP로부터 하나의 IP를 받아오기 때문이다.

7. What is a private network address? Should a datagram with a private network address ever be present in the larger public Internet? Explain.
해당 네트워크 내부에서만 의미있는, 장치에 할당된 네트워크 주소.
Should not. Private network address는 해당 private network의 많은 네트워크 장치에 의해 사용될 가능성이 있기 때문이다.

8. Is has been said that when IPv6 tunnels through IPv4 routers, IPv6 treats the IPv4 tunnels as link-layer protocols. Do you agree with this statement? Why or why not?
Yes. IPv6 datagram은 헤더 필드를 포함하여 모두 IPv4 datagram으로 캡슐화되기 때문이다.

9. What is meant by the term" route aggregation"? Why is it useful for a router to perform route aggregation?
Route aggregation이란 다수의 네트워크에 할당된 주소 범위를 그룹화시켜 하나로 묶어 표현하는 것이다. Route aggregation은 여러 라우트를 하나의 라우트로 요약하여 라우팅 테이블에서 다뤄야 할 정보량이 줄어들게 되므로 유용하다.

10. Compare and contrast the IPv4 header with the IPv6 header. Create a table to compare each field.

	IPv4	IPv6
Header length	O	X
Flags, Flags offset	O	X
Checksum	O	X
Payload length	X	O