Cairo University
Faculty of Engineering
Computer Department

Computer Networks
CMPN 415 -405B
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Sheet 8

1. Show the classful address ranges, number of hosts and their relative network masks.

2. Briefly describe one disadvantage of the classful addressing and how subnetting can solve it.

3. Given the following addresses, choose their relative class (A- B-C-D or E) and their network mask (default subnet mask).

Address	class	network mask
10.250.1.1	A	8
192.14.2.0	c	24
150.10.15.0	B	16
230.230.45.58	E	undf
219.21.56.0	c	24

4. Using the IP address and subnet mask shown write out the network address and the host address of the following:

Address and mask	Network Address	Host Address
188.10.18.2 255.255.0.0	188.10.0.0	0.0.18.2
10.10.48.80 255.255.255.0	10.10.48.0	0.0.0.80
223.169.23.20 255.255.0.0	223.169.0.0	0.0.23.20

5. Consider a company provided with the address range from 193.62.83.0 to 193.62.83.255 calculate the maximum number of hosts if it uses classful addressing and if it uses classless addressing with 255.128.0.0 as network mask.

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6. A company using classful addressing is provided by network address 192.10.10.0, the company needed at least 14 subnets each of them has at least 14 hosts, show the following:
   a. Address class
   b. Default subnet mask
   c. Custom subnet mask
   d. Total number of possible subnets 16
   e. Total number of hosts 14
   f. Number of bits borrowed for subnetting → 4
   g. Compare the number of hosts if we didn't use subnetting at all. 2~2

8
16×14

7. Convert the IP address whose hexadecimal representation is C22F1532 to dotted decimal notation.

8. A large number of consecutive IP address (classless) 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 the w.x.y.z/s notation.

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

Address/mask	Next hop
135.46.56.0/22	Interface 0
135.46.60.0/22	Interface 1
192.53.40.0/23	Router 1
default	Router2

For each of the following IP addresses, what does the router do if a packet with that address arrives?
   a. 135.46.63.10
   b. 135.46.57.14
   c. 135.46.52.2
   d. 192.53.40.7
   e. 192.53.56.7

R2

Int 1

R1

R2

done

23/12/13