

City University of Hong Kong
Department of Electronic Engineering

EE3009 Data Communications and Networking

Tutorial 2

1. Identify the address class of the following IP addresses: 200.58.20.165; 128.167.23.20; 16.196.128.50; 150.156.10.10; 230.10.24.96.
2. Convert the IP addresses in the previous question to their binary representation.
3. Identify the range of IPv4 network addresses spanned by Class A, Class B, Class C and Class D.
4. In the following table, i denotes the number of bits borrowed from the host portion of a Class C IP address to create a subnetwork address. Note that all 0s or 1s in the subnetwork address field are also reserved. Complete the following table.

| i | Subnet mask | no. of subnets | no. of hosts |
|-----|-----------------|----------------|--------------|
| 2 | 255.255.255.192 | 2 | 62 |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |

5. Similar to Question 4, the following table corresponds to subnetting in Class B networks. Expand and complete the table.

| i | Subnet mask | no. of subnets | no. of hosts |
|-----|---------------|----------------|--------------|
| 2 | 255.255.192.0 | 2 | 16,382 |

6. A host in an organization has an IP address 150.32.64.34 and a subnet mask 255.255.240.0. What is the address of this subnet? What is the range of IP addresses that a host can have on this subnet?
7. You have been assigned a Class C address of 201.222.5.0, and you are asked to create 20 subnets, each supporting 5 hosts. Give the three smallest subnet addresses. For the subnet with the smallest address, list all the possible host IP addresses.