Faculty of Computing



**[Computer Communications & Network]**

**Lab No 5 Tasks**

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**<https://angsila.cs.buu.ac.th/~pusit/cisco/ch10/lab1/index.html>**

**Task 1: Use the IP address chart and your knowledge of IP address classes to answer the following questions:**

1. **What is the decimal and binary range of the first octet of all possible Class B IP addresses?**

* Decimal: From: 128 To: 191
* Binary: From 10000000 To: 10111111

1. **Which octet(s) represent the network portion of a Class C IP address?** First three octet
2. **Which octet(s) represent the host portion of a Class A IP address?** Last three octet
3. **What is the maximum number of useable hosts with a Class C network address?** 254
4. **How many Class B networks are there?** 16000
5. **How many hosts can each Class B network have?** 65000
6. **How many octets are there in an IP address?** 4 **How many bits per octet?** 8 bits per octet

**Task 2: Determine the host and network portions of the IP address**

With the following IP host addresses, indicate the following:

* Class of each address
* Network address or ID
* Host portion
* Default subnet mask

The host portion will be all zeros for the network ID. Enter just the octets that make up the host. The host portion will be all ones for a broadcast. The network portion of the address will be all ones for the subnet mask. Fill in the following table:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Host IP Address | **Address Class** | **Network Address** | **Host Address** | **Default Subnet Mask** |
| **216.14.55.137** | Classs C | 216.14.55.0 | 0.0.0.137 | 255.255.255.0 |
| **123.1.1.15** | Classs A | 123.0.0.0 | 0.1.1.15 | 255.0.0.0 |
| **150.127.221.244** | Classs B | 150.127.0.0 | 0.0.221.244 | 255.255.0.0 |
| **194.125.35.199** | Classs C | 194.125.35.0 | 0.0.0.199 | 255.255.255.0 |
| **175.12.239.244** | Classs B | 175.12.0.0 | 0.0.239.244 | 255.255.0.0 |

**Task 3: Given an IP address of 142.226.0.15, answer the following questions:**

What is the binary equivalent of the second octet? 1100010

What is the class ofthe address? Class B

What is the network address of this IPaddress? \_142.226.0.0

Is this a valid IP host address (Y/N)? Why or why not?

142.226.0.15 is within the valid range of host addresses for the network 142.226.0.0 and is not reserved for network or broadcast purposes.

**Task 4: Determine which IP host addresses are valid for commercial networks**

|  |  |  |
| --- | --- | --- |
| **IP Host Address** | **Valid Address? (Yes/No)** | **Why or Why Not** |
| **150.100.255.255** | No | This address falls within the Class B range |
| **175.100.255.18** | Yes | This address falls within the Class B range |
| **195.234.253.0** | No | This is a Class C address (192.0.0.0 to 223.255.255.255). The address 195.234.253.0 is a network address (all host bits are zero), so it is not a valid host address. |
| **100.0.0.23** | Yes | This address falls within the Class A range |
| **188.258.221.176** | No | The address 188.258.221.176 is invalid because the second octet 258 is out of the valid range (0 to 255) for octets in an IP address. |
| **127.34.25.189** | No | The IP address 127.34.25.189 falls within the IP address range 127.0.0.0 to 127.255.255.255. This range is reserved for loopback addresses, |
| **224.156.217.73** | No | This address falls within the Class D range and is reserved for multicast, |