Tutorial N° 1
IP Addressing and Subnetting

Exercise 1

1. What is the size of the address space in each of the following systems?
   a) A system in which each address is 16 bits.
   b) A system in which each address is made up of six hexadecimal digits.
2. Rewrite the following IPv4 addresses in binary notation. Then specify for each one: **(i)** the class, **(ii)** the default mask, **(iii)** the network address.
   a) 110.11.5.88
   b) 201.24.44.32

Exercise 2

An organization is granted the network address 130.56.0.0. The administrator wants to create 1024 subnets. Find the following:

a) The class and the default mask.

b) Number of bits in the Subnet ID.

c) Number of usable IP addresses in each subnet.

d) Subnet mask in dotted-decimal notation and slash notation.

e) First and last IP addresses in subnet N° 1.

f) First and last IP addresses in subnet N° 30.

g) The broadcast address of subnet N° 7.

h) The IP address of Host N° 10 belonging to subnet N° 10.

Exercise 3

A classless address is given as 167.199.170.210/25

a) Find the first and the last IP Addresses.

b) The number of IP addresses in the block

c) The number of usable IP addresses in the block