IP ADDRESS EXERCISES

1. The IP addresses of devices and their subnet masks are shown below. Find out which part of the address is network and which part is host.

Note:

1. **Network part**: Bits that are 1 in the subnet mask.
2. **Host part**: Bits that are 0 in the subnet mask.

   a) 192.168.6.25, 255.255.0.0
      Network part: 192.168
      Host part:6.25

   b) 170.10.0.15, 255.255.255.0
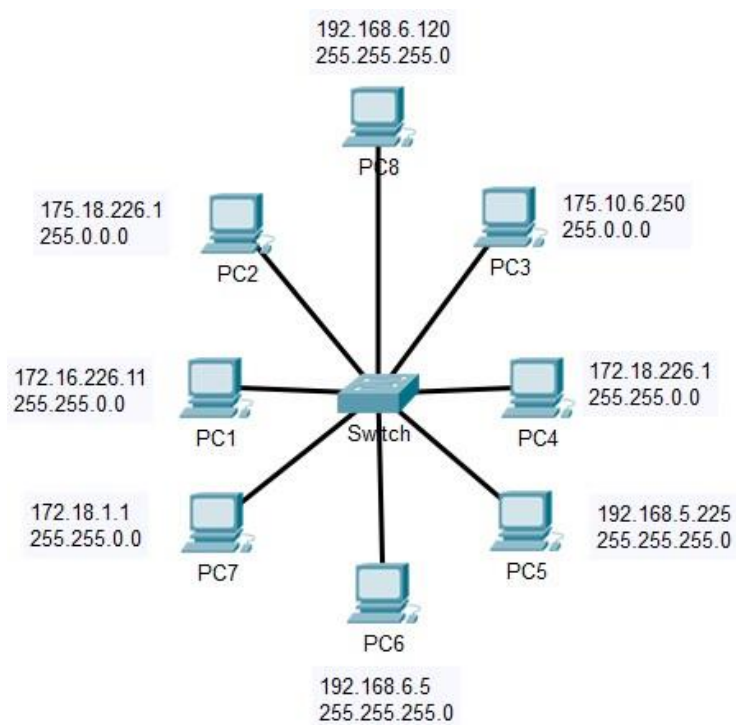   Network part: 170.10.0
      Host part:15

   c) 10.10.10.1, 255.255.255.0
      Network part: 10.10.10
      Host part:1

2. Which of the computers in the network below can operate with each other?

Pc2:

IP address: 175.18.226.1
Subnet mask: 255.0.0.0
Network: 175.0.0.0
Host: 18.226.1

Pc3:

IP address: 175.10.6.250
Subnet mask: 255.0.0.0
Network: 175.0.0.0
Host:10.6.250

PC2 and PC3 both have the same Network ID ,so they can communicate.

Pc4:

  IP address: 172.18.226.1
  Subnet mask: 255.255.0.0
  Network: 172.18.0.0
  Host: 1.1

Pc7:

  IP address: 172.18.1.1
  Subnet mask: 255.255.0.0
  Network: 172.18.0.0
  Host: 1.1

PC4 and PC7 both have the same Network ID, so they can communicate.

Pc6:

  IP address: 192.168.6.5
  Subnet mask: 255.255.225.0
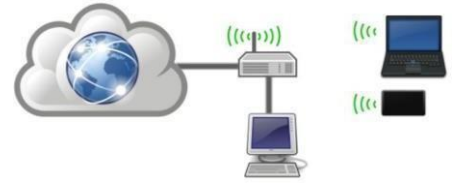 Network: 172.168.0.0
  Host: 5

Pc8:

  IP address: 192.168.6.120
  Subnet mask: 255.255.225.0
  Network: 192.168.6.0
  Host: 120

PC6 and PC8 both have the same Network ID 192.168.6.0, so they can communicate

PC1 wont have the connection with any PC's.

3. The computer, "laptop" and mobile device in the picture are connected to the Internet via the router in the picture. The router's IP address is 172.18.226.1 and the subnet mask is 255.255.255.0.

   a) What should the IP addresses and masks of terminal devices be like in order for Internet access to be possible?

   ➤ Each device should have a unique IP address within the same subnet as router. Which means the device should have same network address but different

   ➤ The rage for IP address is between 172.18.226.2 to 172.18.226.254

   b) What kind of IP address should be defined as the default gateway for terminal devices

   ➤ The router IP (172.18.226.1) address must be unique and be defined as the default gateway for terminal devices.

4. What is the first and last address available for devices on the networks below. Why?

   a) 192.0.0.0 ; 255.255.255.0

      First Host Address: 192.0.0.1

      Last Host Address:192.0.0.254

   b) 172.0.0.0 ; 255.255.0.0

      First Host Address: 172.0.0.1

      Last Host Address:172.0.255.254

   c) 112.0.0.0 ; 255.0.0.0

      First Host Address: 112.0.0.1

      Last Host Address:112.255.255.254

   d) 192.168.0.0 ; 255.255.0.0

      First Host Address: 192.168.225.224

      Last Host Address:192.168.255.254

5. Find out from your own computer:

   a) Your IP address -192.168.0.121

   b) Gateway IP address - 192.168.0.1

   c) DNS server IP address - 192.168.0.1

   d) DHCP server IP address - 192.168.0.1

   e) Does your computer use a public or private
      ➢ IP address My computer use is private IP address

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Microsoft Windows [Version 10.0.22631.4602]
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C:\Users\sanir>ipconfig /all

Windows IP Configuration

   Host Name . . . . . . . . . . . . : sanir_subedi
   Primary Dns Suffix  . . . . . . . :
   Node Type . . . . . . . . . . . . : Hybrid
   IP Routing Enabled. . . . . . . . : No
   WINS Proxy Enabled. . . . . . . . : No

Wireless LAN adapter Local Area Connection* 1:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Microsoft Wi-Fi Direct Virtual Adapter
   Physical Address. . . . . . . . . : 2E-98-11-78-E3-E1
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Local Area Connection* 2:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Microsoft Wi-Fi Direct Virtual Adapter #2
   Physical Address. . . . . . . . . : 2E-98-11-78-F3-F1
   DHCP Enabled. . . . . . . . . . . : Yes                    .
   Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Wi-Fi:

   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : RZ616 Wi-Fi 6E 160MHz
   Physical Address. . . . . . . . . : 2C-98-11-78-C3-C1
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes
   Link-local IPv6 Address . . . . . : fe80::5c62:c39d:f701:35c4%15(Preferred)
   IPv4 Address. . . . . . . . . . . : 192.168.0.121(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Lease Obtained. . . . . . . . . . : 20 January 2025 17:48:56
   Lease Expires . . . . . . . . . . : 20 January 2025 20:49:04
   Default Gateway . . . . . . . . . : 192.168.0.1
   DHCP Server . . . . . . . . . . . : 192.168.0.1
   DHCPv6 IAID . . . . . . . . . . . : 153917457
   DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-2E-33-12-BC-00-EE-BC-DB-06-20
   DNS Servers . . . . . . . . . . . : 192.168.0.1
   NetBIOS over Tcpip. . . . . . . . : Enabled

Ethernet adapter Bluetooth Network Connection:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Bluetooth Device (Personal Area Network)
   Physical Address. . . . . . . . . : 2C-98-11-78-C3-C2
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes

C:\Users\sanir>
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