Faculty of Computing



**[Computer Communications & Network]**

**Lab No 6 Tasks**

**BISMA RAFIQUE**

**41763**

**Task 1:** Write the IP address 222.1.1.20 mask 255.255.255.192 in CIDR.

**ANSWER:**

**255 . 255 . 255 . 192**

**11111111.11111111.11111111.11000000**

The subnet mask has **26 bits set to 1** (which represent the network part), and **6 bits set to 0** (which represent the host part). This means the CIDR notation is /26.

**Final Answer:**

**222.1.1.20/26**

This notation tells you that the first 26 bits are the network part, and the remaining 6 bits are for host

addresses within this subnet

**Task 2:** Write is the IP address 135.1.1.25 mask 255.255. 248.0 in CIDR notation.

**ANSWER:**

255 . 255 . 248 . 0

11111111.11111111.11111000.00000000

This shows that the first **21 bits** are set to 1, which represents the network portion, and the remaining **11 bits**

are 0, which represent the host portion. Therefore, the CIDR notation is /21

**Final Answer:**

**135.1.1.25/21**

This tells you that the first 21 bits are for the network portion, and the remaining 11 bits are for host addresses

within this subnet

**Task 3:** You have been allocated a class C network address of 201.1.1.0 how may hosts can you have?

**ANSWER:**

Number of hosts = 2^8 - 2

= 256 - 2

= 254 hosts

**Task 4:** You have been allocated a class A network address of 21.0.0.0. You need create at least 10 networks and each network will support a maximum of 100 hosts. Would the following two subnet masks Work.

255.255.0.0 and or 255.255.255.0

**ANSWER:**

Both subnet masks for the Class A network address 21.0.0.0 will work:

* **255.255.0.0 (/16)**:
  + **Hosts per Network**: 65,534
  + **Networks**: 256
* **255.255.255.0 (/24)**:
  + **Hosts per Network**: 254
  + **Networks**: 65,536

**Final Answer**: Both masks meet your requirements.

**Task 5:** You have been allocated a Class B network address of 129.1.0.0. You have subnetted it using the subnet mask 255.255.255.0 How many networks can you Have and how many hosts can you place on each network?

**ANSWER:**

**Analyze the Subnet Mask**

* **Given Subnet Mask**: 255.255.255.0 (or /24)
* **Network Portion**: This subnet mask allocates the first 24 bits to the network portion (the first three octets).
* **Host Portion**: The remaining **8 bits** are available for hosts.

**Step 3: Calculate Number of Networks**

1. **Additional Subnet Bits**: Since you're using a /24 subnet mask instead of the default /16, you are borrowing 8 bits from the host portion for subnetting.
2. **Number of Networks**:

Number of Networks=2number of borrowed bits=28=256 networks\text{Number of Networks} = 2^{\text{number of borrowed bits}} = 2^8 = 256 \text{ networks}Number of Networks=2number of borrowed bits=28=256 networks

**Step 4: Calculate Number of Hosts per Network**

1. **Available Host Bits**: There are still **8 bits** available for hosts in each subnet.
2. **Number of Hosts**:

Number of Hosts=2n−2(subtracting 2 for the network and broadcast addresses)\text{Number of Hosts} = 2^n - 2 \quad \text{(subtracting 2 for the network and broadcast addresses)}Number of Hosts=2n−2(subtracting 2 for the network and broadcast addresses)

Where n=8n = 8n=8:

Number of Hosts=28−2=256−2=254 hosts\text{Number of Hosts} = 2^8 - 2 = 256 - 2 = 254 \text{ hosts}Number of Hosts=28−2=256−2=254 hosts

**Final Answer**

* **Number of Networks**: **256**
* **Number of Hosts per Network**: **254**

Thus, with a Class B network address of 129.1.0.0 and a subnet mask of 255.255.255.0, you can have **256 networks** and **254 hosts** on each network