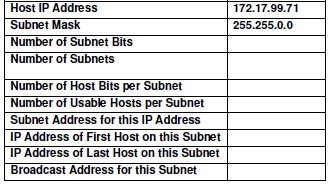
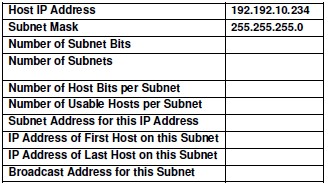
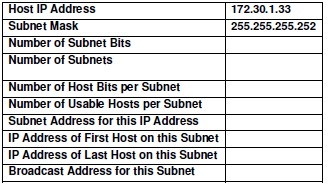
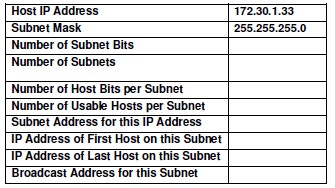
Name: **ZOHAIB HASSAN SOOMRO**

RollNo#: **19SW42**

Subject: CN(Pr)





**Problem-1:**

|  |  |
| --- | --- |
| Host IP Address | 172.30.1.33 |
| Subnet Mask | 255.255.255.0 |
| Number of Subnet Bits | **8** |
| Number of Subnets | **256** |
| Number of Host Bits per Subnet | **8** |
| Number of Usable Hosts per Subnet | **254** |
| Subnet Address for this IP Address | **172.30.1.0** |
| IP Address of First Host on this Subnet | **172.30.1.1** |
| IP Address of Last Host on this Subnet | **172.30.1.254** |
| Broadcast Address for this Subnet | **172.30.1.255** |

**Step-1:** Finding Subnet Address: (AND b/w IP and SM)

Given:

M.D S.D

IP : 172.30.1.33 = 10101100.00011110.00000001.00100001

Subnet Mask : 255.255.255.0 = 11111111.11111111.11111111.00000000

S.B: 8 bits H.B: 8 bits

Subnet Address: = 10101100.00011110.00000001.00000000

**Subnet Address: = 172.30.1.0**

**Number of Subnet Bits(S.B)= 8 bits**

**Number of Subnets= 2^n = 2^8 = 256 subnets**

**Number of Host Bits(H.B) per subnet= 8 bits**

**Number of Usable Hosts per subnet= 2^n-2= 2^8-2=254**

* For first host IP on this subnet we will make all host bits 0 except the right one(make 1) so the First host IP on this Subnet is:

**First Host IP Address**: = 10101100.00011110.00000001.00000001

= **172.30.1.1**

* For last host IP on this subnet we will make all host bits 1 except the right one(make 0) so the Last host IP on this Subnet is:

**Last Host IP Address**: = 10101100.00011110.00000001.11111110

= **172.30.1.254**

* For Broadcast Address of this subnet we will make all host bits 1 so the Broadcast Address of this Subnet is:

**Broadcast Address of this Subnet**=10101100.00011110.00000001.11111111

= **172.30.1.255**

**Fill The Data in the Above Table now.**

**Problem-2:**

|  |  |
| --- | --- |
| Host IP Address | 172.30.1.33 |
| Subnet Mask | 255.255.255.252 |
| Number of Subnet Bits | **14** |
| Number of Subnets | **16384** |
| Number of Host Bits per Subnet | **2** |
| Number of Usable Hosts per Subnet | **2** |
| Subnet Address for this IP Address | **172.20.1.32** |
| IP Address of First Host on this Subnet | **172.20.1.33** |
| IP Address of Last Host on this Subnet | **172.20.1.34** |
| Broadcast Address for this Subnet | **172.20.1.35** |

**Step-1:** Finding Subnet Address: (AND b/w IP and SM)

Given:

M.D S.D

IP : 172.30.1.33 = 10101100.00011110.00000001.00100001

Subnet Mask : 255.255.255.252 = 11111111.11111111.11111111.11111100

S.B: 14 bits H.B: 2 bits

Subnet Address: = 10101100.00011110.00000001.00100000

**Subnet Address: = 172.20.1.32**

**Number of Subnet Bits(S.B)= 14 bits**

**Number of Subnets= 2^n = 2^14 = 16,384 subnets**

**Number of Host Bits(H.B) per subnet= 2 bits**

**Number of Usable Hosts per subnet= 2^n-2= 2^2-2=2**

* For first host IP on this subnet we will make all host bits 0 except the right one(make 1) so the First host IP on this Subnet is:

**First Host IP Address**: = 10101100.00011110.00000001.00100001

= **172.20.1.33**

* For last host IP on this subnet we will make all host bits 1 except the right one(make 0) so the Last host IP on this Subnet is:

**Last Host IP Address**: = 10101100.00011110.00000001. 00100010

= **172.20.1.234**

* For Broadcast Address of this subnet we will make all host bits 1 so the Broadcast Address of this Subnet is:

**Broadcast Address of this Subnet**=10101100.00011110.00000001.00100011

= **172.20.1.235**

**Fill The Data in the Above Table now.**

**Problem-3:**

|  |  |
| --- | --- |
| Host IP Address | 192.192.10.234 |
| Subnet Mask | 255.255.255.0 |
| Number of Subnet Bits | **0** |
| Number of Subnets | **1** |
| Number of Host Bits per Subnet | **8** |
| Number of Usable Hosts per Subnet | **254** |
| Subnet Address for this IP Address | **192.192.10.0** |
| IP Address of First Host on this Subnet | **192.192.10.1** |
| IP Address of Last Host on this Subnet | **192.192.10.254** |
| Broadcast Address for this Subnet | **192.192.10.255** |

**Step-1:** Finding Subnet Address: (AND b/w IP and SM)

Given:

M.D S.D

IP :192.192.10.234 = 11000000.11000000.00001010.11101010

Subnet Mask : 255.255.255.0 = 11111111.11111111.11111111.00000000

S.B: 0 bits H.B: 8 bits

Subnet Address: = 11000000.11000000.00001010.00000000

**Subnet Address: = 192.192.10.0**

**Number of Subnet Bits(S.B)= 0 bits**

**Number of Subnets= 2^n = 2^0 = 1 subnet**

**Number of Host Bits(H.B) per subnet= 8 bits**

**Number of Usable Hosts per subnet= 2^n-2= 2^8-2=254**

* For first host IP on this subnet we will make all host bits 0 except the right one(make 1) so the First host IP on this Subnet is:

**First Host IP Address**: = 11000000.11000000.00001010.00000001

= **192.192.10.1**

* For last host IP on this subnet we will make all host bits 1 except the right one(make 0) so the Last host IP on this Subnet is:

**Last Host IP Address**: = 11000000.11000000.00001010.11111110

= **192.192.10.254**

* For Broadcast Address of this subnet we will make all host bits 1 so the Broadcast Address of this Subnet is:

**Broadcast Address of this Subnet**=11000000.11000000.00001010.11111111

= **192.192.10.255**

**Fill The Data in the Above Table now.**

**Problem-4:**

|  |  |
| --- | --- |
| Host IP Address | 172.17.99.71 |
| Subnet Mask | 255.255.0.0 |
| Number of Subnet Bits | **0** |
| Number of Subnets | **1** |
| Number of Host Bits per Subnet | **16** |
| Number of Usable Hosts per Subnet | **65,234** |
| Subnet Address for this IP Address | **172.17.0.0** |
| IP Address of First Host on this Subnet | **172.17.0.1** |
| IP Address of Last Host on this Subnet | **172.17.255.254** |
| Broadcast Address for this Subnet | **172.17.255.255** |

**Step-1:** Finding Subnet Address: (AND b/w IP and SM)

Given:

M.D S.D

IP : 172.17.99.71 = 10101100.00010001.01100011.01000111

Subnet Mask : 255.255.0.0 = 11111111.11111111.00000000.00000000

S.B: 0 bits H.B: 16 bits

Subnet Address: = 10101100.00010001.00000000.00000000

**Subnet Address: = 172.17.0.0**

**Number of Subnet Bits(S.B)= 0 bits**

**Number of Subnets= 2^n = 2^0 = 1 subnets**

**Number of Host Bits(H.B) per subnet= 16 bits**

**Number of Usable Hosts per subnet= 2^n-2= 2^16-2=65,534**

* For first host IP on this subnet we will make all host bits 0 except the right one(make 1) so the First host IP on this Subnet is:

**First Host IP Address**: = 10101100.00010001.00000000.00000001

= **172.17.0.1**

* For last host IP on this subnet we will make all host bits 1 except the right one(make 0) so the Last host IP on this Subnet is:

**Last Host IP Address**: = 10101100.00010001.11111111.11111110

= **172.17.255.254**

* For Broadcast Address of this subnet we will make all host bits 1 so the Broadcast Address of this Subnet is:

**Broadcast Address of this Subnet**=10101100.00010001.11111111.11111111

= **172.17.255.255**

**Fill The Data in the Above Table now.**