**COMPUTER NETWORKS**

**Lab 6**

**Subnetting (FLSM & VLSM)**



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**Problem No.1 /30**

For the given IPs fill the following table for first 2 subnets.

1. **IP = 70.0.0.0 for 3333 subnets**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Subnet no.** | **Subnet ID** | **Subnet Mask** | **1st usable IP address** | **2nd usable IP address** | **Last usable IP address** | **Broadcast address** |
| 3333 | 70.0.0.0 | 255.0.0.0 | 70.0.0.1 | 70.0.0.2 | 70.0.15.254 | 70.0.15.255 |
| 3333 | 70.0.16.0 | 255.0.0.0 | 70.0.16.1 | 70.0.16.2 | 70.0.31.254 | 70.0.31.255 |

1. **IP = 140.76.0.0 for 1780 subnets**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Subnet no.** | **Subnet ID** | **Subnet Mask** | **1st usable IP address** | **2nd usable IP address** | **Last usable IP address** | **Broadcast address** |
| 1780 | 140.76.0.0 | 255.255.0.0 | 140.76.0.1 | 140.76.0.2 | 140.76.0.30 | 140.76.0.31 |
| 1780 | 140.76.0.32 | 255.255.0.0 | 140.76.0.33 | 140.76.0.34 | 140.76.0.62 | 140.76.0.63 |

1. **IP = 211.35.17.0 for 8 subnets**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Subnet no.** | **Subnet ID** | **Subnet Mask** | **1st usable IP address** | **2nd usable IP address** | **Last usable IP address** | **Broadcast address** |
| 8 | 211.35.17.0 | 255.255.255.0 | 211.35.17.1 | 211.35.17.2 | 211.35.17.30 | 211.35.17.31 |
| 8 | 211.35.17.32 | 255.255.255.0 | 211.35.17.33 | 211.35.17.34 | 211.35.17.62 | 211.35.17.63 |

**Problem No.2 /30**

For the following IPs do the subnetting as per the no. of hosts given and fill the following table.

1. **IP = 65.0.0.0 for 30000, 224000 , 70000 , 80000 hosts**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Subnet no.** | **Subnet ID** | **Subnet Mask** | **1st usable IP address** | **2nd usable IP address** | **Last usable IP address** | **Broadcast address** | **No. of hosts** |
| **224000** | 65.0.0.0 | 255.252.0.0 | 65.0.0.1 | 65.0.0.2 | 65.3.255.254 | 65.3.255.255 | 262,144 |
| **80000** | 65.4.0.0 | 255.254.0.0 | 65.4.0.1 | 65.4.0.2 | 65.5.255.254 | 65.5.255.255 | 131,072 |
| **70000** | 65.6.0.0 | 255.254.0.0 | 65.6.0.1 | 65.6.0.2 | 65.7.255.254 | 65.7.255.255 | 131,072 |
| **30000** | 65.8.0.0 | 255.255.128.0 | 65.8.0.1 | 65.8.0.2 | 65.8.127.254 | 65.8.127.255 | 32,768 |

1. **IP = 132.17.0.0 for 10000 , 7000 , 16000 , 500 hosts**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Subnet no.** | **Subnet ID** | **Subnet Mask** | **1st usable IP address** | **2nd usable IP address** | **Last usable IP address** | **Broadcast address** | **No. of hosts** |
| **16000** | 132.17.0.0 | 255.255.192.0 | 132.17.0.1 | 132.17.0.2 | 132.17.63.254 | 132.17.63.255 | 16384 |
| **10000** | 132.17.64.0 | 255.255.192.0 | 132.17.64.1 | 132.17.64.2 | 132.17.127.254 | 132.17.127.255 | 16384 |
| **7000** | 132.17.128.0 | 255.255.224.0 | 132.17.128.1 | 132.17.128.2 | 132.17.149.254 | 132.17.149.255 | 8192 |
| **500** | 132.17.150.0 | 255.255.240.0 | 132.17.150.1 | 132.17.150.2 | 132.17.165.254 | 132.17.165.255 | 512 |

1. **IP = 198.168.2.0 for 50 , 11, 31 , 19 hosts**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Subnet no.** | **Subnet ID** | **Subnet Mask** | **1st usable IP address** | **2nd usable IP address** | **Last usable IP address** | **Broadcast address** | **No. of hosts** |
| **50** | 198.168.2.0 | 255.255.255.192 | 198.168.2.1 | 198.168.2.2 | 198.168.2.62 | 198.168.2.63 | 64 |
| **31** | 198.168.2.64 | 255.255.255.224 | 192.168.2.65 | 192.168.2.66 | 198.168.2.94 | 198.168.2.95 | 32 |
| **19** | 198.168.2.96 | 255.255.255.224 | 198.168.2.97 | 192.168.2.98 | 198.168.2.126 | 198.168.2.127 | 32 |
| **11** | 198.168.2.128 | 255.255.255.250 | 198.168.2.129 | 198.168.2.130 | 198.168.2.142 | 198.168.2.143 | 16 |