MUGISHA ALVIN ALLAN M25B13/019

SECTION ONE

QN 1

New Subnet mask: 255.255.255.192

Number of subnets= 4 subnets

Usable hosts per subnet = 62

QN 2

New subnet mask : 255.255.255.224

Number of hosts per subnet; 30 usable hosts

First two new subnets;

192.168.1.0/27

192.168.1.32/27

Qn 3 a)

New Mask; 255.255.255.0

Subnets =16 new subnets

Usable hosts;254

B

The subnet and broadcast address for the fourth subnet

Subnet:172.16.3.0

Broadcast: 172.16.3.255

Qn 4

New mask ; 255.255.128.0

Number of subnets created =512 subnets

Hosts per subnet; 32,766

Qn 5

Subnet mask; 255.255.255.224

No of hosts per subnet;30

Subnet ranges ;

Range 1: 192.168.5.1 - 192.168.5.30,

Range 2: 192.168.5.33 - 192.168.5.62

Range 3: 192.168.5.65 - 192.168.5.94

**SECTION TWO**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **QN NO** | **New mask** | **Subnets Created** | **Usable Hosts** | **Ranges/Details** |
| 1 | 255.255.255.240 | 16 | 14 | R1: 192.168.60.1 - 192.168.60.14, R2: 192.168.60.17 - 192.168.60.30, R3: 192.168.60.33 - 192.168.60.46, R4: 192.168.60.49 - 192.168.60.62 |
| 2 | 255.255.254.0 | 8 | 510 |  |
| 3 | 255.255.255.224 | 4 | 30 | 192.168.40.0/27, 192.168.40.32/27, 192.168.40.64/27, 192.168.40.96/27 |
| 4 | 255.255.255.192 | 1024 | 62 |  |
| 5 | 255.255.255.192 | 8 | 62 |  |
| 6 | 255.255.255.192 | 4 | 62 | 192.168.10.0-63, 192.168.10.64-127, 192.168.10.128-191, 192.168.10.192-25530 |
| 7 | 255.255.255.224 | 8 | 30 | 192.168.1.0/27, 192.168.1.32/27, 192.168.1.64/27 |
| 8 | 255.255.128.0 | **512** | 32,766 |  |
| 9 | 255.255.240.0 | 16 | 4,094 |  |
| 10 | 255.255.255.192 | 4 | 62 |  |
| 11 |  |  |  | Network: 192.168.5.64, First Host: 192.168.5.65, Last Host: 192.168.5.126, Broadcast: 192.168.5.127 |
| 12 |  |  |  | Network: 172.16.0.0, First Host: 172.16.0.1, Last Host: 172.16.15.254, Broadcast: 172.16.15.255 |
| 13 | **255.255.255.240** | 16 | 14 | Block Size: 16, Example Range: 192.168.2.17 - 192.168.2.30 |
| 14 | 255.255.255.128 | 2 | 126 | Subnet 1 Usable: 192.168.100.1 - 192.168.100.126, Subnet 2 Usable: 192.168.100.129 - 192.168.100.254 |
| 15 | 255.255.255.252 | 64 | 2 |  |
| 16 | 255.255.254.0 | 128 | 510 |  |
| 17 | 255.255.255.240 | `16 | 14 | 192.168.30.0/28, 192.168.30.16/28, 192.168.30.32/28, 192.168.30.48/28 |
| 18 | 255.255.224.0 |  | 8,190 | Network ID: 10.0.0.0, Broadcast: 10.0.31.255, Usable Range: 10.0.0.1 - 10.0.31.254 |
| 19 | 255.255.224.0 |  | 8,190 | /19 IS sufficient. Hosts: 8,190 |
| 20 | 255.255.255.192 | 8 | 62 |  |
| 21 | 255.255.255.192 |  | 62 | Network: 172.20.50.128, Broadcast: 172.20.50.191 |
| 22 | 255.255.255.128 | 2 | 126 | Smallest Prefix: /25. Subnets fit in /24: 2. |
| 23 | 255.255.255.224 | 8 | 30 | Prefix: /27. IDs: 203.0.113.0, 203.0.113.32, 203.0.113.64 |
| 24 | 255.255.255.252 | 64 | 2 | Example Range: 10.10.10.5 - 10.10.10.6 |
| 25 | 255.255.255.224 |  | 30 | Next-Hop Subnet: 192.168.88.224/27. Usable Range: 192.168.88.225 - 192.168.88.254 |
| 26 |  |  |  | Sales (60): 192.168.60.0/26, HR (28): 192.168.60.64/27, IT (12): 192.168.60.96/28, Admin (6): 192.168.60.112/29 |
| 27 |  |  |  | A (100): 10.0.0.0/25, B (50): 10.0.0.128/26, C (20): 10.0.0.192/27 |
| 28 |  |  |  | 200 Hosts: 172.18.0.0/24, 60 Hosts: 172.18.1.0/26, 25 Hosts: 172.18.1.64/27, 10 Hosts: 172.18.1.96/28 |
| 29 | 255.255.254.0 |  |  | Summary Route: 192.168.16.0/23 |
| 30 |  |  |  | LAN (40): 192.0.2.0/26, P2P 1: 192.0.2.64/30, P2P 2: 192.0.2.68/30, ..., P2P 10: 192.0.2.100/30 |
| 31 | 255.255.252.0 |  | 1,022 | Prefix: /22. Usable Hosts: 1,022. |
| 32 | 255.255.255.128 | 2 | 126 | Range 1: 198.51.100.0/25, Range 2: 198.51.100.128/25 (Only 2 subnets of this size are possible in a /24) |
| 33 |  | 16 |  | Prefix 1: 2001:db8:acad::/52, Prefix 2: 2001:db8:acad:1000::/52 |
| 34 |  | 4 |  | 2001:db8:1234:5600::/58, 2001:db8:1234:5640::/58, 2001:db8:1234:5680::/58, 2001:db8:1234:56c0::/58 |