

Faculty of Computing



[Computer Communications & Network]

Lab No 6 Tasks

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

Answer: IP: **222.1.1.20** with mask **255.255.255.192**.
Mask 255.255.255.192 = binary 11111111.11111111.11111111.11000000
→ **26** bits of network.
CIDR: 222.1.1.20/26

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

Answer: IP: **135.1.1.25** with mask **255.255.248.0**.
Mask 255.255.248.0 = binary 11111111.11111111.1111000.00000000
→ **21** bits of network.
CIDR: 135.1.1.25/21.

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

Answer: Allocated Class C network **201.1.1.0** (default class C mask = 255.255.255.0 = /24).
Hosts per network = $2^8 - 2 = 256 - 2 = 254$.

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: Class A network: **21.0.0.0**
Need: ≥ 10 subnets, each ≥ 100 hosts.

Borrowed bits for subnet = $16 - 8 = 8$
→ number of subnets = $2^8 = 256$ (≥ 10).
Host bits left = $32 - 16 = 16$
→ hosts per subnet = $2^{16} - 2 = 65536 - 2 = 65534$ ($\gg 100$).

255.255.0.0 (/16): 256 subnets, 65,534 hosts/subnet → works.

Borrowed bits = $24 - 8 = 16$
→ number of subnets = $2^{16} = 65536$ (≥ 10).
Host bits left = $32 - 24 = 8$
→ hosts per subnet = $2^8 - 2 = 256 - 2 = 254$ (≥ 100).

255.255.255.0 (/24): 65,536 subnets, 254 hosts/subnet → it also works.

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: Class B address **129.1.0.0** subnet mask **255.255.255.0** = /24. Default class B = /16.

Borrowed bits for subnet = $24 - 16 = 8$

→ number of subnets = $2^8 = 256$

Host bits left per subnet = $32 - 24 = 8$

→ hosts per subnet = $2^8 - 2 = 254$

256 networks, 254 hosts per network.