



Lab Practical #09:

Practical Assignment #09:

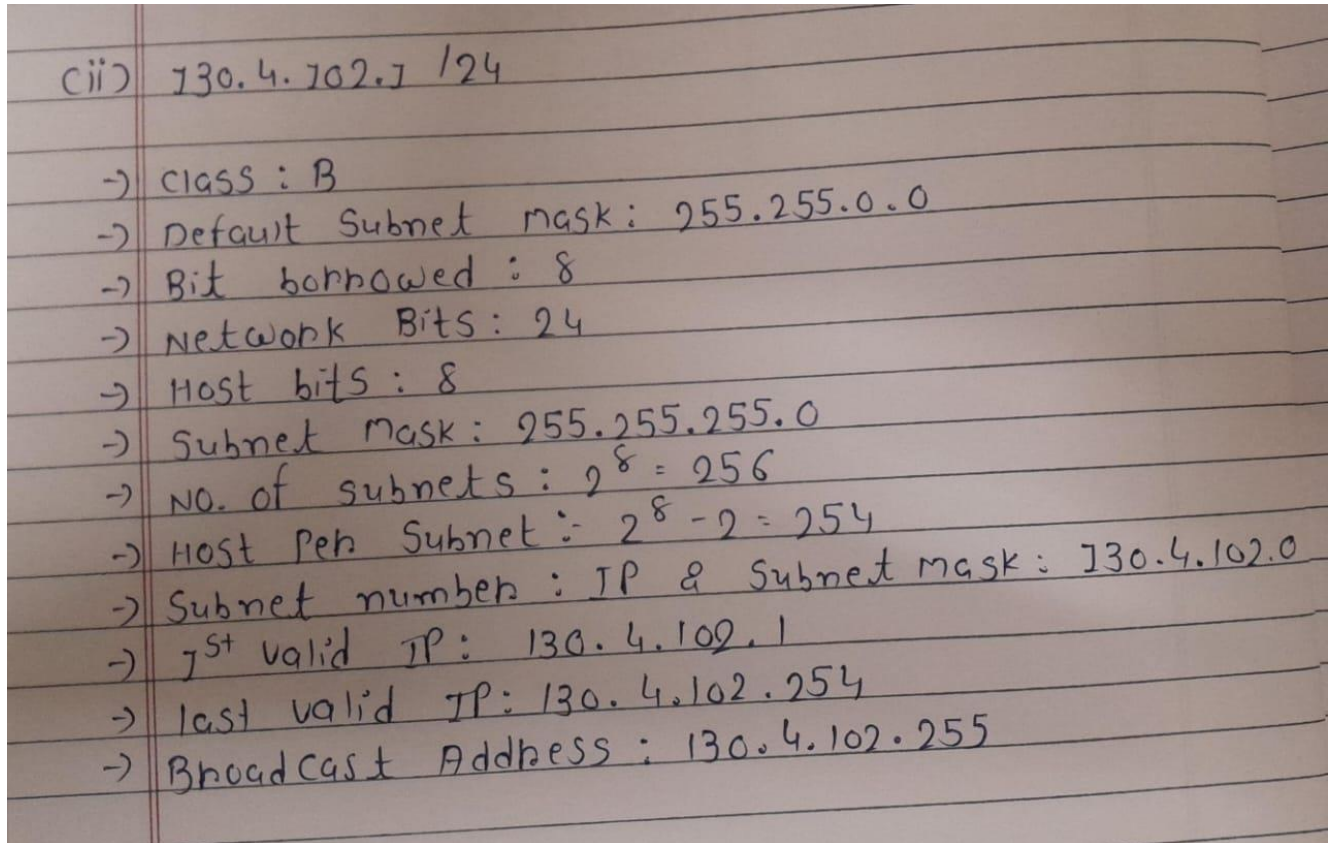
1. Find default subnet marks, network bits, host bits, hosts per subnet, no of subnets, subnet number, 1st valid IP address, last valid IP address, and broadcast address.

i. 8.1.4.5/16

1 Enrollment No: - 22010101099

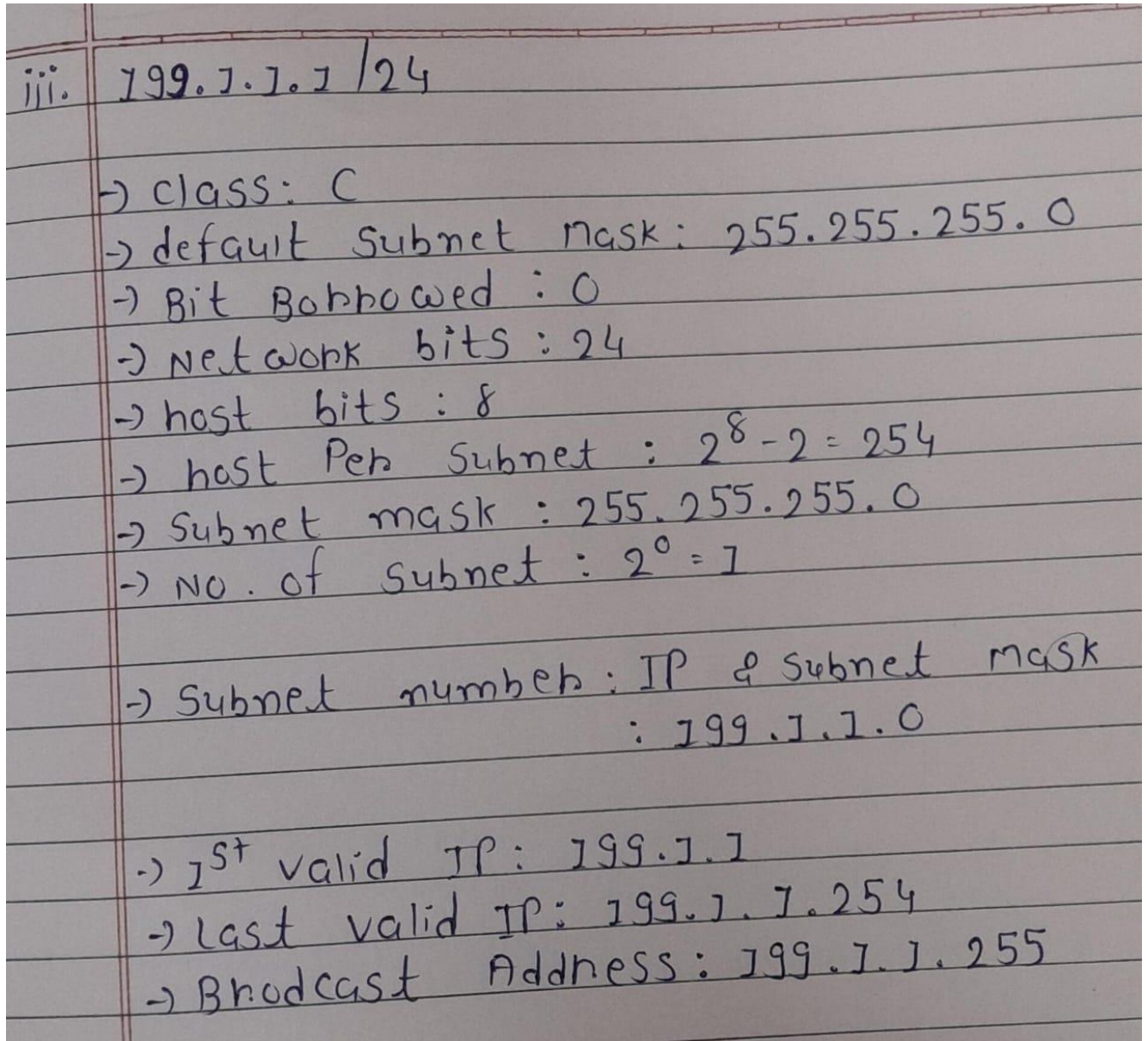
Date: 17/09/2024

ii. 130.4.102.1/24



Date: 17/09/2024

iii. 199.1.1.1/24

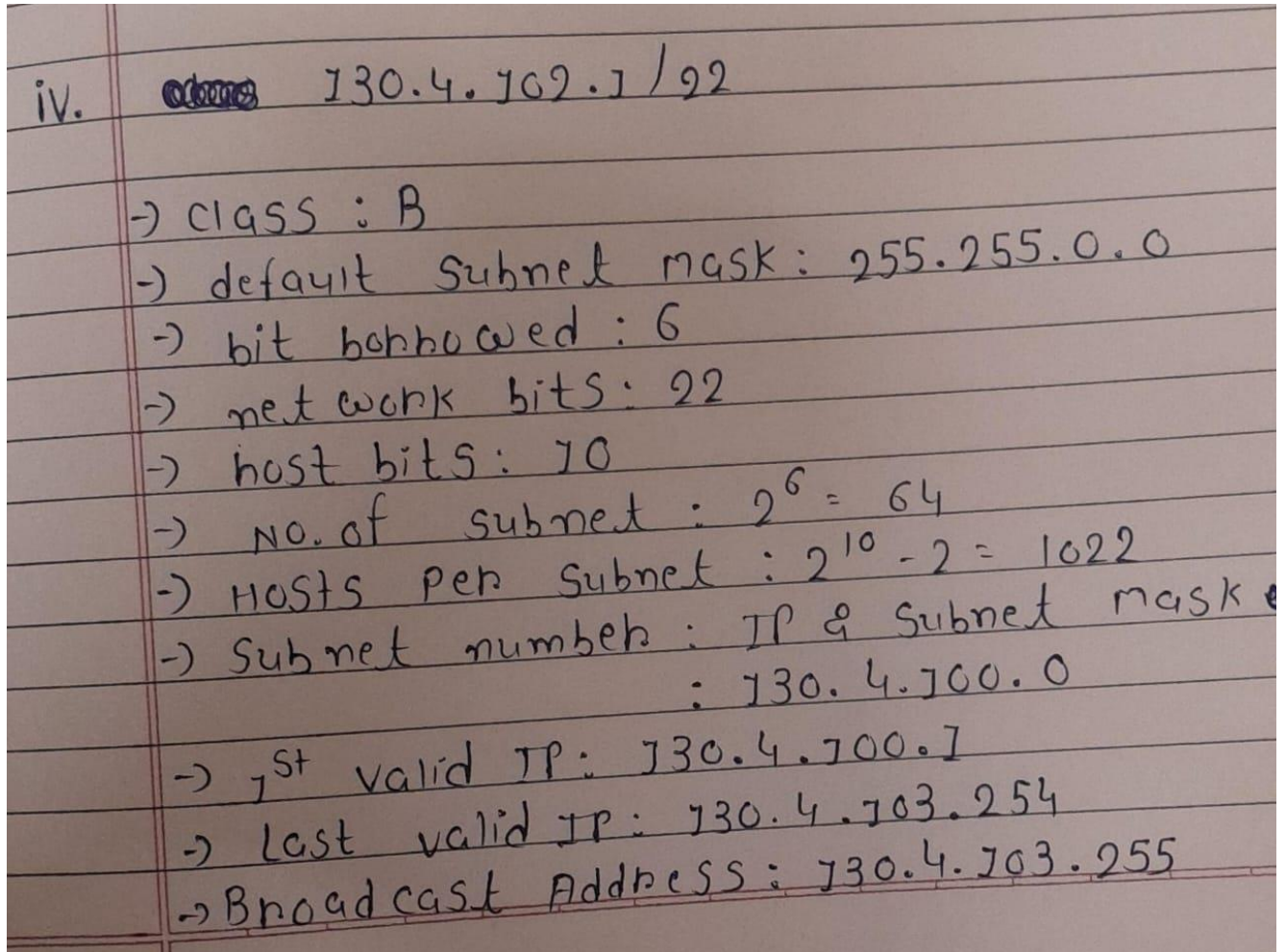


iii. 199.1.1.1 / 24

- class: C
- default Subnet mask: 255.255.255.0
- Bit Borrowed: 0
- network bits: 24
- host bits: 8
- host Per Subnet: $2^8 - 2 = 254$
- Subnet mask: 255.255.255.0
- No. of Subnet: $2^0 = 1$
- Subnet number: IP & Subnet mask
: 199.1.1.0
- 1st valid IP: 199.1.1
- last valid IP: 199.1.1.254
- Broadcast Address: 199.1.1.255

Date: 17/09/2024

iv. 130.4.102.1/22



iv. ~~130.4.102.1~~ 130.4.102.1 / 22

- class : B
- default Subnet mask : 255.255.0.0
- bit borrowed : 6
- network bits : 22
- host bits : 10
- No. of subnet : $2^6 = 64$
- Hosts per subnet : $2^{10} - 2 = 1022$
- Subnet number : IP & Subnet mask
: 130.4.100.0
- 1st valid IP : 130.4.100.1
- Last valid IP : 130.4.103.254
- Broadcast Address : 130.4.103.255

Date: 17/09/2024

v. 199.1.1.100/27

V.	199.1.1.100 / 27
→	class: C
→	default Subnet mask : 255.255.255.0
→	bit borrowed : 3
→	network bits : 27
→	hosts bit : 5
→	Subnet mask : 255.255.255.224
→	No. of Subnet : $2^3 = 8$
→	Hosts per subnet : $2^5 - 2 = 30$
→	Subnet number : IP & Subnet mask : 199.1.1.96
→	1 st valid IP: 199.1.1.97
→	last valid IP: 199.1.1.126
→	Broadcast IP: 199.1.1.127

Date: 17/09/2024

2. A host in a class C network has been assigned an IP address 192.168.17.9. Find the number of addresses in the block, the first address, and the last address.

(Q2) A host in class C network has been assigned an IP Address 192.168.17.9. Find the no. of Addresses in the block, the First Address and the Last Address

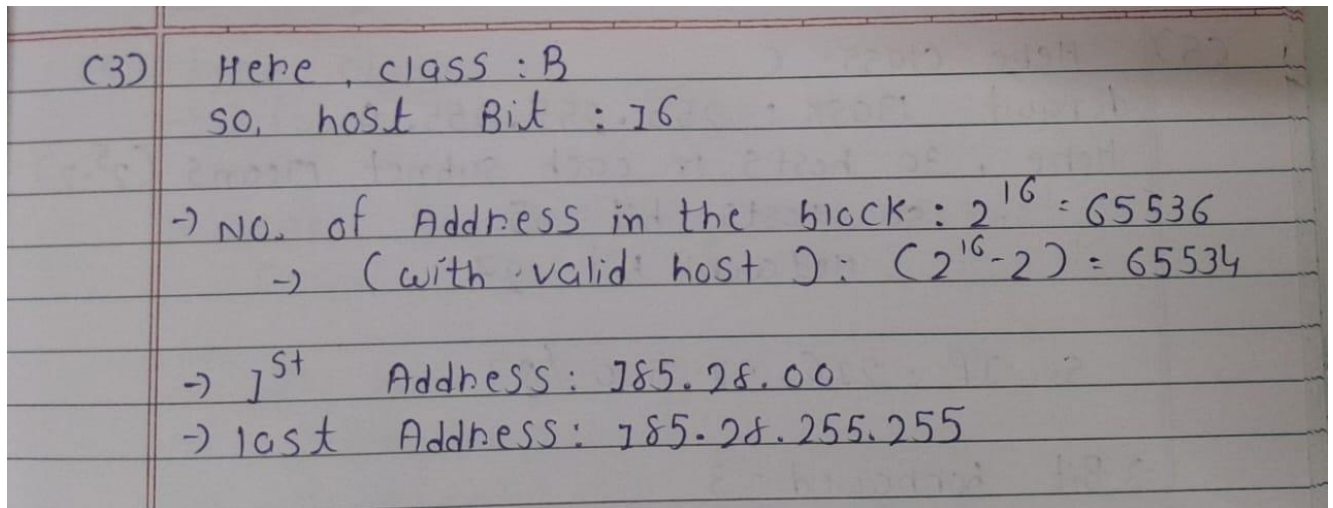
→ here, class: C
So, host bit = 8

→ No. of Address in the block: $2^8 = 256$
→ with valid host: $(2^8 - 2) = 254$

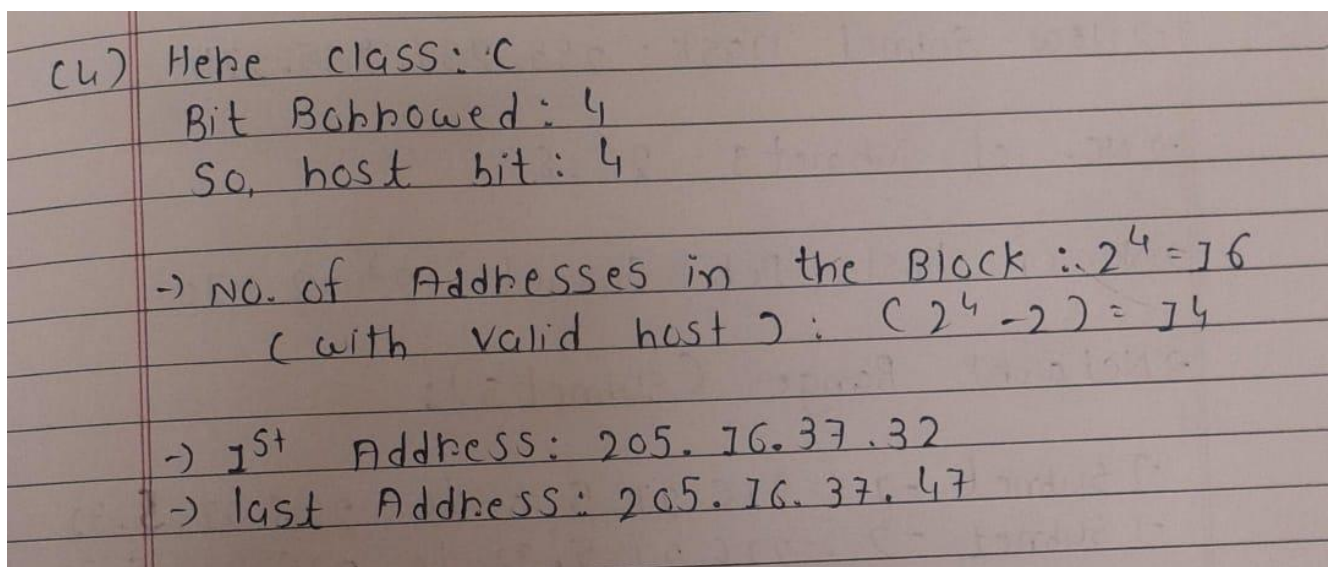
→ 1st Address: 192.168.17.0
→ Last Address: 192.168.17.255

Date: 17/09/2024

3. An address in a block is given as 185.28.17.9. Find the number of addresses in the block, the first address, and the last address.



4. A block of addresses is granted to a small organization. We know that one of the addresses is 205.16.37.39/28. What is the first address, last address, number of addresses in a block.



Date: 17/09/2024

5. Subnet the IP address 216.21.5.0 into 30 hosts in each subnet. Find Class, Default Mask, Bit Borrowed, New subnet mask, No. of Hosts & Subnet, Network Ranges (Subnets).

(5) Here class: C
default mask: 255.255.255.0
Here, 30 hosts in each subnet means $(2^5 - 2)$
so, hosts bit = 5
network bit = 27

So, IP: 216.21.5.0 /27

→ Bit borrowed = 3
→ New Subnet mask: 255.255.255.224
→ No. of subnets: $2^3 = 8$
→ No. of hosts per Subnet: $2^5 - 2 = 30$
→ Network Ranges (subnets):
⇒ Subnet -1: 216.21.5.0 to 216.21.5.31
⇒ Subnet -2: 216.21.5.32 to 216.21.5.63

and so on upto 8 Subnet.

Date: 17/09/2024

6. Subnet the IP address 192.10.20.0 into 52 hosts in each subnet. Find Class, Default Mask, Bit Borrowed, New subnet mask, No. of Hosts & Subnet, Network Ranges (Subnets).

(6) here, class: C
→ default subnet mask: 255.255.255.0
→ Here, 52 hosts in each subnet
means $52 < (2^6 - 2) \Rightarrow 52 < 62$
So, host bits = 6
⇒ Bit Borrowed = 2
⇒ Network Bits = 26
⇒ So, IP will be 192.10.20.0/26
→ New Subnet Mask: 255.255.255.192
→ No. of Subnet: $2^2 = 4$
⇒ No. of valid hosts per Subnet: $2^6 - 2 = 62$
⇒ Network Ranges (Subnets):
⇒ Subnet - 1: 192.10.20.0 to 192.10.20.63
⇒ Subnet - 2: 192.10.20.64 to 192.10.20.127
and so, on upto 4 subnet.