The Network Layer :-

Protocol :- IP

Data Unit :- Datagram

Addressing :- IP Address.

IP Address :-

32 bits (4 bytes)

Dotted Decimal Number.

(0-256). (0-256). (0-256). (0-256)

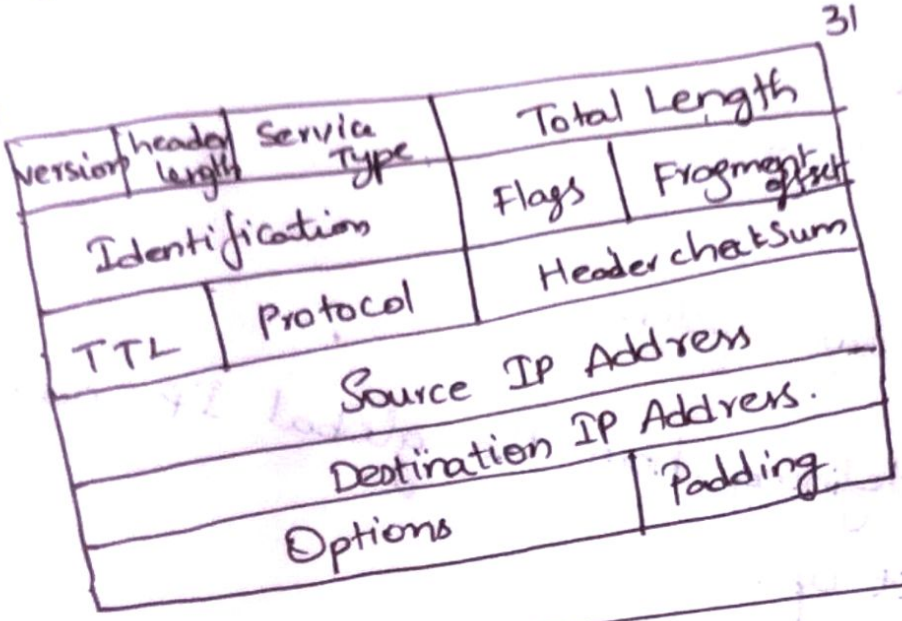
IP Address belong to the network, not to the computer.

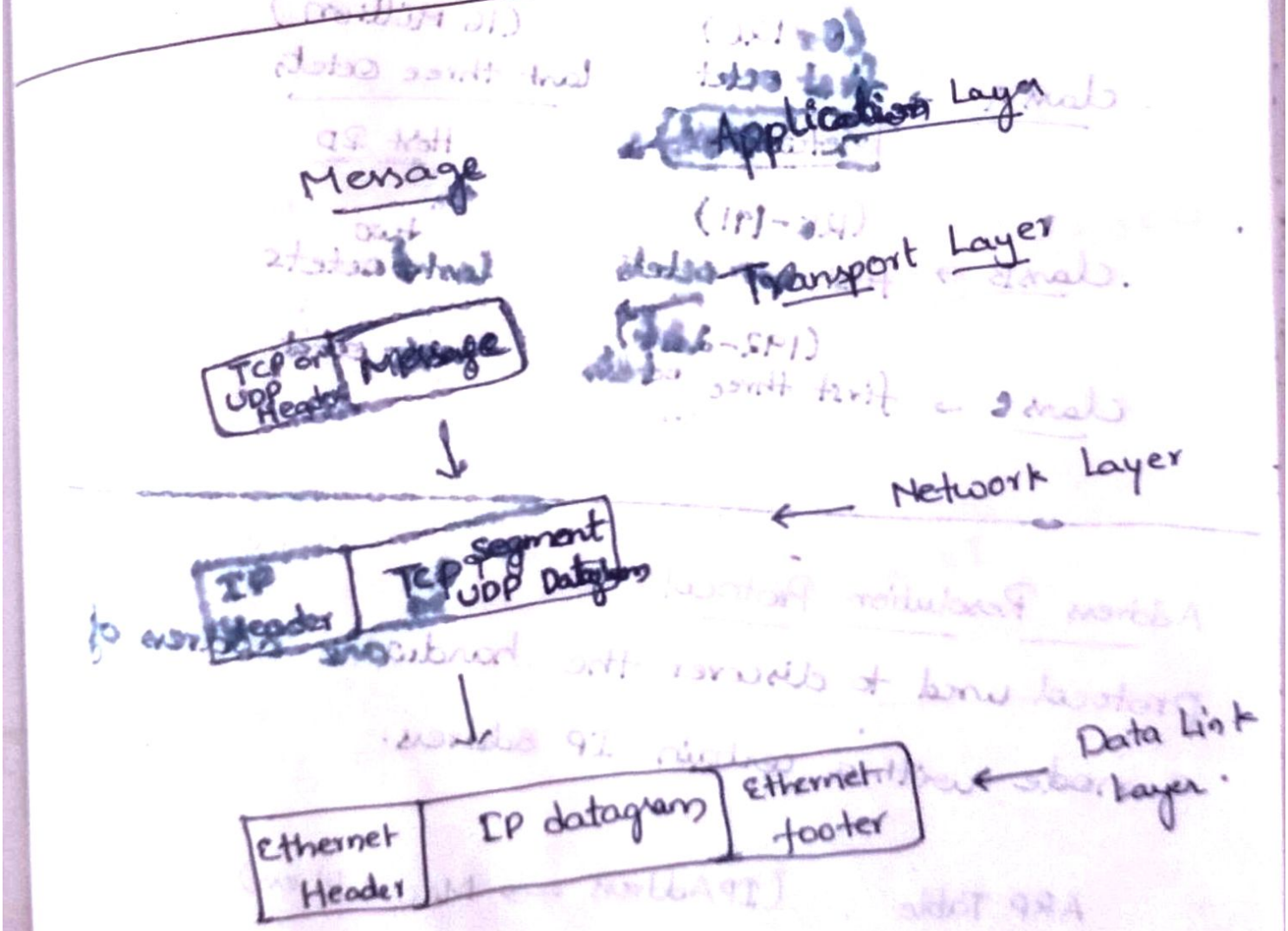
Your Computer will have different IP Address when connected to different networks.

Dynamic Host Configuration Protocol :-

When a new device is connected to the network, it is given a Dynamic IP by this Protocol.

IP Datagrams :-





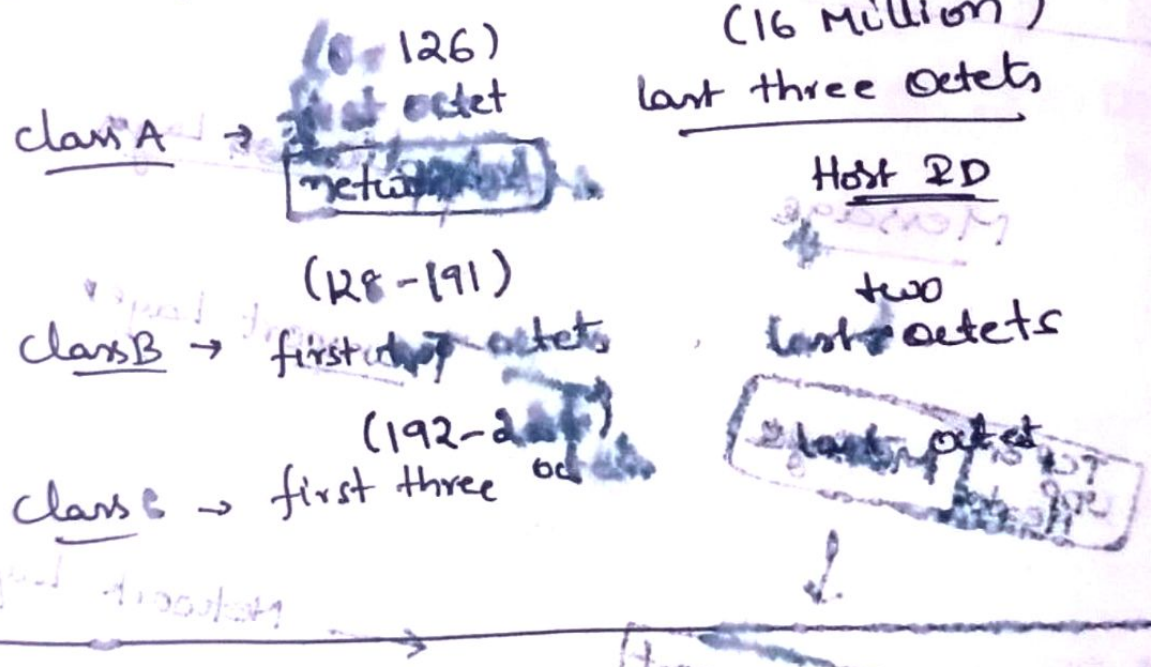
IP Addresses :-

Network ID :-

Host ID :-

Address class system :-

A way of defining how the global IP address space is split up.



Address Resolution Protocol :-

Protocol used to discover the hardware address of a node with a certain IP address.

ARP Table (IP Address → MAC Address)

SubNetting :-

SubNet Masks :-

(32 bits)

part with 1's — first part

part with 0's — last part

* only part with 0's is available to give addresses.

IP → 9.100.100.100

subnet mask → 255.255.255.224

11111111 | 8 ones | 8 is |

111 00000

27 1's 5 0's.

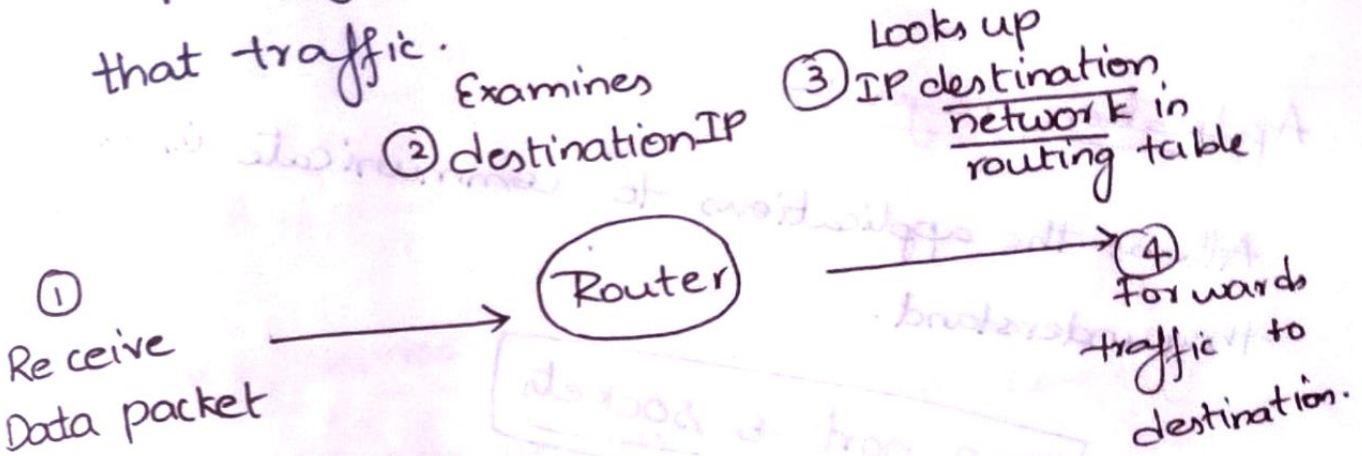
So, IP can be represented as

9.100.100.100/27

Routing :-

Router :-

Network device that forwards traffic depending on the destination address of that traffic.



Routing Protocols :-

(Interior Gateway Protocols

* Link state routing protos.
* Distance vector routing protos.

Interior Gateway protocols :-

Used by routers to share information within a single autonomous system.

↳ collection of networks fall under control of single network operator.

Exterior Gateway protocols :-

b/w 2 autonomous systems.