

## Experiment - 2

2) What is MAC address & how is it related to NIC  
→

A MAC (Media Access control) address is a unique identifier which is assigned to an NIC for use as a network address in communications within a network. It is called as hardware address or physical address. A MAC address is a 48 bit identifier that is typically expressed in hexadecimal. for example "00:1A:2B:3C:4D:5E"

3) What is DNS  
→ ~~DNS~~

DNS (Domain name system) is a technology used on the internet to translate domains like "www.google.com" to IP addresses (like 192.168.1.1) which is used by computers to identify each other in a network.

DNS is essential as it allows us to use case to remember domain names instead of IP address.

4) How are network types classified  
→

Network types are classified into:

- LAN (Local Area Network)
- PAN (Personal Area Network)
- MAN (Metropolitan area network)
- WAN (Wide area network)



5) Explain different types of networks

Network types are :-

(i) LAN (Local Area Network) :- LAN is a network which connects a small geographical area. Such as home or campus. They are typically limited in size. Devices within LAN are to be connected using Ethernet cables / wifi

(ii) PAN (Personal Area Network) :- PAN has the smallest network of all & has a range of few meters. They are used to connect personal devices such as phones & computers using bluetooth or hotspot

(iii) MAN (Metropolitan Area Network) :- It's a network which covers a larger area than LAN, typically within a city. They can be used to connect multiple LANs in different locations within a city / metro area.

(iv) WAN (Wide area network) :- This network covers the largest area of all typically within between countries & continents. The internet itself is a collection of WAN's.

6) Differentiate MAC address & IP addresses (Any 4)

MAC address

IP addresses

- six byte hexadecimal address

- 4 byte (IPv4) or 16 byte (IPv6) address.

- used to ensure physical address of a computer

- used to is the logical address of the computer

- operates in data link layer

- operates in network layer

- hardware oriented

- software oriented

- NIC Card's Manufacturer provides MAC address

- Internet service provider provides IP address

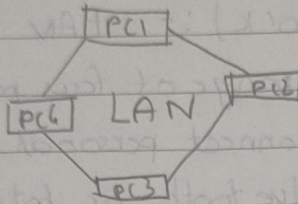


→ what is ARP protocol

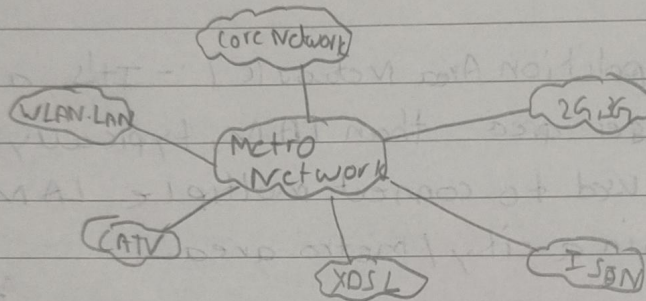
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ARP protocol (Address resolution protocol) is a protocol used in computer networking to map an IP address to a Physical MAC address within a local area segment. It is used in ethernet networks & helps devices find each others MAC address while communicating through the network.

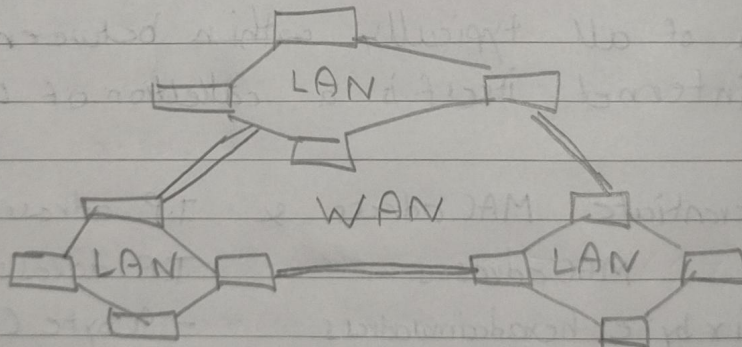
LAN :-



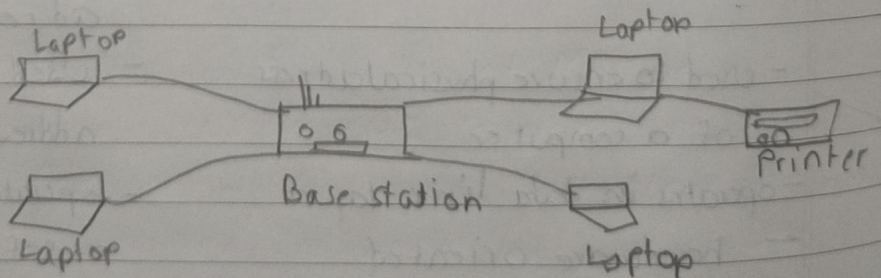
MAN :-



WAN :-



PAN :-



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