1. What is an IP address and why is it important in a network?

An Ip address is an address unique number which is given to a networking devices or devices that allow network connectivity as an id when routing is occurred and within those device’s network or when their network is connected to another networks. It is used to identify each device and network, to enable communication between other devices including servers and for internet purpose, for security reasons.

1. Differentiate between IPv4 and IPv6 in terms of: - Address length- Notation format- Number of available addresses

* In terms of address length IPV4 has 32 bit long with four octets each separated by dots and in terms of the number of available addresses it has 4.3 billion addresses
* In terms of address length IPV6 is 128 bits long with 8 hextets and interms of available address it has 340 undecillion addresses.

1. Write the binary equivalent of the IPv4 address 192.168.10.1.

11000000.10101000.00001010.00000001

4. Convert the following binary IP address to decimal:

11000000.10101000.00000001.00000010

= 192.168.1.

5. What are the ranges of Class A, B, and C IPv4 addresses?

6. Which IP class does the address 172.16.5.4 belong to?

7. What is the difference between public IP and private IP? List private IP ranges.

8. What is the role of loopback address in IP networking?

9. Explain the use of static IP vs dynamic IP with examples.

10. What is the default subnet mask for:- Class A →- Class B →- Class C →