Q5. What is the role of MAC address. And how to find mac address in our laptop/pc machine.

Ans.

Media access control refers to the piece of hardware that controls how data is pushed out onto a network. In the OSI reference model for networking, the MAC is a Layer 2 -- or data link layer -- device, and the MAC address is a Layer 2 address. In the current internet era, most devices are connected physically with Ethernet cables or wirelessly with Wi-Fi. Both methods use MAC addresses to identify a device on the network.A MAC address is responsible for local identification and an IP address for global identification.

A MAC address consists of 12 hexadecimal digits, usually grouped into six pairs separated by hyphens. MAC addresses are available from 00-00-00-00-00-00 through FF-FF-FF-FF-FF-FF. The first half of the number is typically used as a manufacturer ID, while the second half is a device identifier. In nearly all enterprise network devices today, whether Wi-Fi or Ethernet, this number is hardcoded into the device during the manufacturing process.

Each MAC address is unique to the network card installed on a device, but the number of device-identifying bits is limited, which means manufacturers do reuse them. Each manufacturer has about 1.68 million available addresses, so when it burns a device with a MAC address ending in FF-FF-FF, it starts again at 00-00-00. This approach assumes it is highly unlikely two devices with the same address will end up in the same local network segment.

No two devices on a local network should ever have the same MAC address. If that does happen, both devices will have communications problems because the local network will get confused about which device should receive the packet. When a switch broadcasts a packet to all ports in order to find the intended recipient, whichever device responds first will receive the packet stream directed to it. If the device reboots, is taken away or shuts down, the other node may then receive the packets.

**To find the MAC address on your Windows computer:**

Clickon the **Start** menu in the bottom-left corner of your computer.Select **Run** or type **cmd** into the search bar at the bottom of the Start menu to bring up the command prompt.

Type **ipconfig /all** (note the space between the g and /).

The MAC address is listed as series of 12 digits, listed as the **Physical Address** (00:1A:C2:7B:00:47, for example). Each network adapter (wireless, Ethernet, etc.) has a separate MAC address.

**To find the MAC address on your Apple computer:**

Choose **System Preferences** from the **Apple** menu.

Select **Network**.

Choose **Airport** for the wireless adapter MAC and click **Advanced** (the MAC address is listed as **Airport ID**).

Choose **Built-in Ethernet** and click **Advanced** and **Ethernet** (listed as **Ethernet ID**) for the network cable adapter MAC.