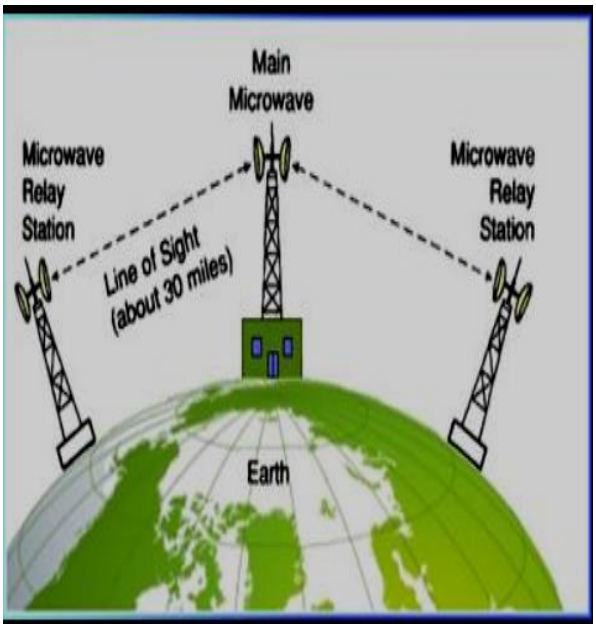
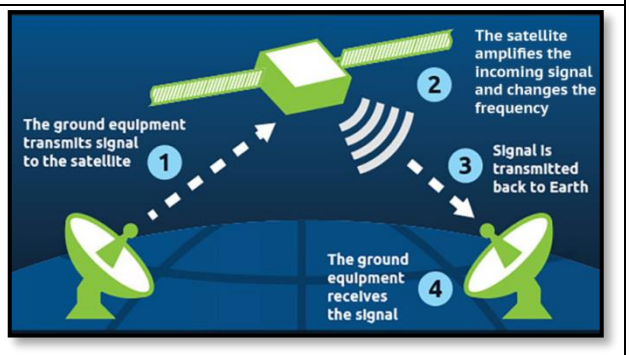
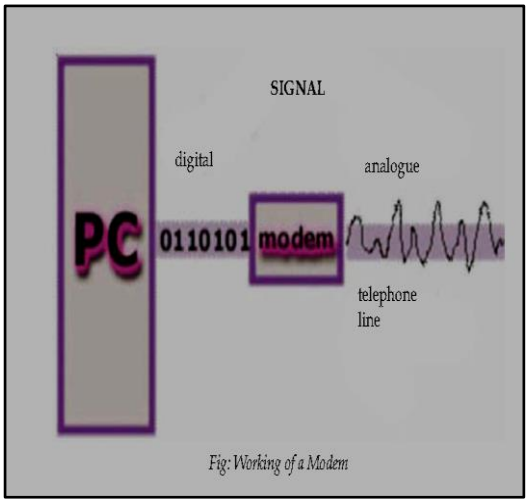
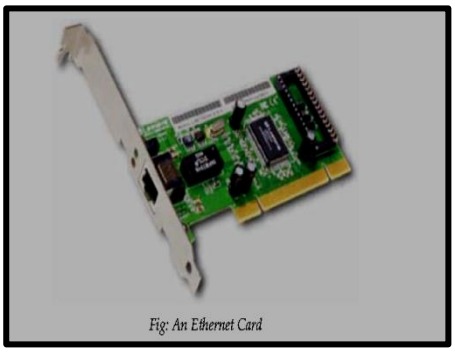
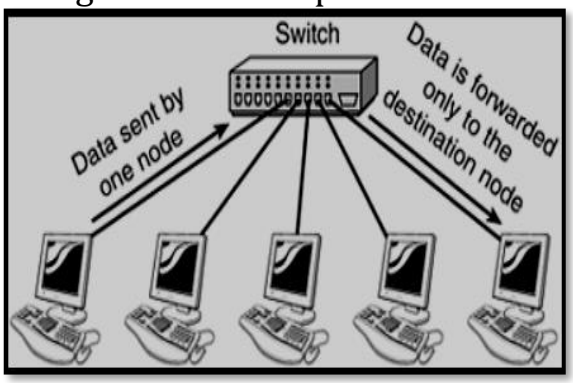
MSD Sanjeevani Public School, Mohan Garden
Subject- Computer Science (with Python)
Class-12th (Non-Med)
Assignment-11 (from ch-10 Computer Network)

Q1	**Explain Microwave transmission?**
Ans	Microwave which permits data transmission rates of about 16 gigabits per second. This type of transmission uses high frequency radio signals(frequency is higher than 3GHz) to transmit data. Microwaves can not pass through obstacles like buildings, mountains etc. As microwaves offer a line of sight method of communication. A transmitter and receiver of a microwave system are mounted on very high towers and both should be visible to each other (line of sight) Several repeater stations are required for long distance transmission thereby increasing the cost considerably. It is generally used for long distance telephonic communications. 
Q2	**Explain Satellite transmission.**
Ans	Satellites are an essential part of telecommunications systems worldwide today. They can carry a large amount of data. The ground station consists of a satellite dish that functions as an antenna and communication equipment to transmit (called Uplink) and receive (called Downlink) data from satellites passing overhead. Capacity or number of channels used in satellite communications depends on the frequency used. Typical data transfer rates are 1 to 10 Mbps. 

	Satellites are especially used for remote locations, which are difficult to reach with wired infrastructure. Also communication and data transfer on internet, is only possible through satellites.
Q3	**Explain the Working of Modem.**
Ans	A modem (Modulator - Demodulator) is a peripheral device that enables a computer to transmit data over, telephone or cable lines. The computers operate digitally using binary language (a series of zeros and ones), but transmission mediums are analogue. A modem converts between these two forms. It modulates an analogue carrier signal to encode digital information, and also demodulates such a carrier signal to decode the transmitted information. This is why modem is called MOdulator/DEModulator. The goal of this process of modulation - demodulation is to produce a signal that can be transmitted easily and decoded to reproduce the original digital data.  Fig: Working of a Modem
Q4	**Explain the use of Network card also explain MAC address?**
Ans	An Ethernet card is a kind of network adapter and is also known as Network Interface Card (NIC). These adapters support the Ethernet standard for high-speed network connections via cables. Ethernet adapters can support the speed of upto 100 Mbps. Fast Ethernet standards are also available now that offer speeds upto 1 Gbps (Gigabit Ethernet).  Fig: An Ethernet Card NIC manufacturer assigns a unique physical address to each NIC card known as MAC address (Media Access Control Address). It is 6 byte address with each byte separated by a colon e.g. 10:B5:03:63:2E:FC, first 3 bytes are manufacturer-id(assigned by international organization) and last 3 bytes are card no(assigned by manufacturer)
Q5	Define RJ-45.

Ans	**RJ-45** RJ-45 , short form of Registered Jack - 45 , is an eight wired connector that is used to connect computers on a local area network(LAN), especially Ethernet. RJ-45 connectors look similar to the RJ-11 connector used for connecting telephone equipment, but they are somewhat wider.  *Fig: RJ-45*
Q6	**Explain working of Switch?**
Ans	A switch is a device that is used to break a network into different sub-networks called subnet or LAN segments. This prevents traffic overloading on the network. Switches are another fundamental part of many networks because they speed things up. They allow different nodes of a network to communicate directly with one another in a smooth and efficient manner. In simple terms, a network switch is a small hardware device that *joins multiple computers together within one local area network (LAN).* Switches are commonly used in home networks and in small businesses. They need not be monitored or configured using external software applications. They are easy to set up and require only cable connections. 
Q7	**What is Router? Explain .**
Ans	A Router is a network device that works like a bridge to establish connection between two networks and it can handle networks with different protocols. For example a router can link an Ethernet network to internet. If the destination is unknown to the router, it sends the traffic to another router which knows the destination. The data is sent to the router which determines the destination address (using logical address) and then transmits the data accordingly. Routers are smarter than hubs and switches. Routers can be wireless or wired.