

MSD Sanjeevani Public School, Mohan Garden
Subject- Computer Science (with Python)
Class-12th (Non-Med)
Assignment-9 (from ch-15 Computer Network)

Q1	What are the requirement for the computer network?
Ans	<ol style="list-style-type: none"> 1. At least two computers - Server and workstation. 2. Network Interface Cards (NIC) 3. A connection medium, usually a wire or cable, although wireless communication between networked computers and peripherals is also possible. 4. Network Operating system software, such as Microsoft Windows NT or 2000, Novell NetWare, Unix and Linux.
Q2	Define Node/workstation and server.
Ans	<ol style="list-style-type: none"> 1. Nodes (Workstations) : A computer becomes a node (also called a workstation) as soon as it is attached to a network. Each user on a network works on a workstation. If there are no nodes there would be no network. 2. Server :A computer that facilitates sharing of data, software and hardware resources on the network is known as the server. A network can have more than one server also. Each server has a unique name by which it is identified by all the nodes on the network.
Q3	Difference between dedicated and non-dedicated Server?
Ans	<ol style="list-style-type: none"> i. <i>Dedicated Servers: These are generally used on big network installations where one computer is reserved for server's job. It helps all nodes access data, software and hardware resources. Since it does not double up as a workstation but only manages the network, so it is known as a dedicated server and such type of networks are called master- slave networks.</i> ii. <i>Non dedicated servers: In small networks, a workstation can double up as a server. These servers are known as non dedicated servers. The small networks using such a server are known as Peer to Peer networks.</i>
Q4	Define Network Interface Card(NIC)/Terminal Access Point.
Ans	A network interface unit is a device that is attached to each of the workstations and the server which helps to establish communication between the server and workstations. The NIC basically acts like an interpreter and is also known as Terminal Access Point (TAP) or Network Interface card(NIC).The NIC manufacturer assigns a unique physical address to each NIC card and this physical address is known as the MAC address.
Q5:	What do you mean by switching techniques in a computer network?
Ans	Switching techniques are used to efficiently transmit data across the network. The two types of switching techniques are employed nowadays to provide communication between two computers on a network are: Circuit Switching and Packet Switching
Q6:	Explain Circuit Switching.
Ans	Circuit switching is a technique in which a dedicated and complete physical connection is established between two nodes and through this dedicated communication channel, the nodes may communicate. The circuit guarantees the full bandwidth of the channel and remains connected for the duration of the communication session. Even if no communication is taking place in a dedicated

	circuit, that channel still remains unavailable to other users.
Q7	Explain Packet Switching.
Ans	<p>Packet switching is a switching technique in which packets are routed between nodes. Each packet contains a "header" with information necessary for routing the packet from source to destination. Each packet in a data stream is independent. The main advantage of packet-switching is that the packets from many different sources can share a line, allowing for very efficient use of the communication medium. If the network becomes overloaded, packets are delayed or discarded ("dropped"). This method of data transmission became the fundamental networking technology behind the internet and most Local Area Networks.</p>
Q8:	Define PAN, LAN, MAN and WAN.
Ans	<p>Personal Area Network is a computer network organized around an individual person. Personal area networks typically involve a mobile computer, a cell phone and/or a handheld computing device such as a PDA. You can use these networks to transfer files including email digital photos and music. USB technology is a wired PAN, while Bluetooth is wireless PAN.</p> <p>In Local Area Network devices are connected over a relatively short distance. They are generally privately owned networks within a single building or campus, of up to a few kilometres in size. Many users can share expensive devices, such as laser printers, as well as data on the LAN. Users can also use the LAN to communicate with each other, by sending mails.</p> <p>Metropolitan Area Network is basically a bigger version of LAN might cover few buildings in a city and might either be private or public. This is a network which spans a physical area in the range of 5 and 50 km diameter that is larger than a LAN but smaller than a WAN. MANs are usually characterized by very high-speed connections using optical fibres or other digital media and provides uplink services to wide area networks (WANs) and the Internet.</p> <p>Wide Area Network : spans a large geographical area, often a country or a continent and uses various commercial and private communication lines to connect computers. Typically, a WAN combines multiple LANs that are geographically separated. The internet is the largest WAN , spanning the entire earth.</p>
<p>Important Terms:</p> <ol style="list-style-type: none"> Network: A collection of independent computers that communicate with one another over a shared network medium. Server: A computer that facilitates sharing of data, software and hardware resources on the network. Personal Area Network (PAN): A computer network organized around an individual person. Local Area Network (LAN): A network in which the devices are connected over a relatively short distance. Metropolitan Area Network (MAN): A network which spans a physical area (in the range of 5 and 50 km diameter) that is larger than a LAN but smaller than a WAN. Wide Area Network (WAN): A network which spans a large geographical area, often a country or a continent. Interspace: A client/server software program that allows multiple users to communicate online with real time audio, video and text chat in dynamic 3D environments. Channel: A medium that is used in the transmission of a message from one point to another. Bandwidth: The range of frequencies available for transmission of data. 	

