Name: Nandon kumar Pal

ID: IT-18022

chapter-6

Question no-1:

a) What is application layer? Explain briefly. 4

b) Describe application layer? 5

c) Describe client server model? 5

Question no-2:

a) What is application protocols? 3

b) Describe application protocols? 5

c) What is Directory services? Describe it. 6

Question no-3:

a) What is file service? 3

b) Define communication service. Mention all communication service. 6

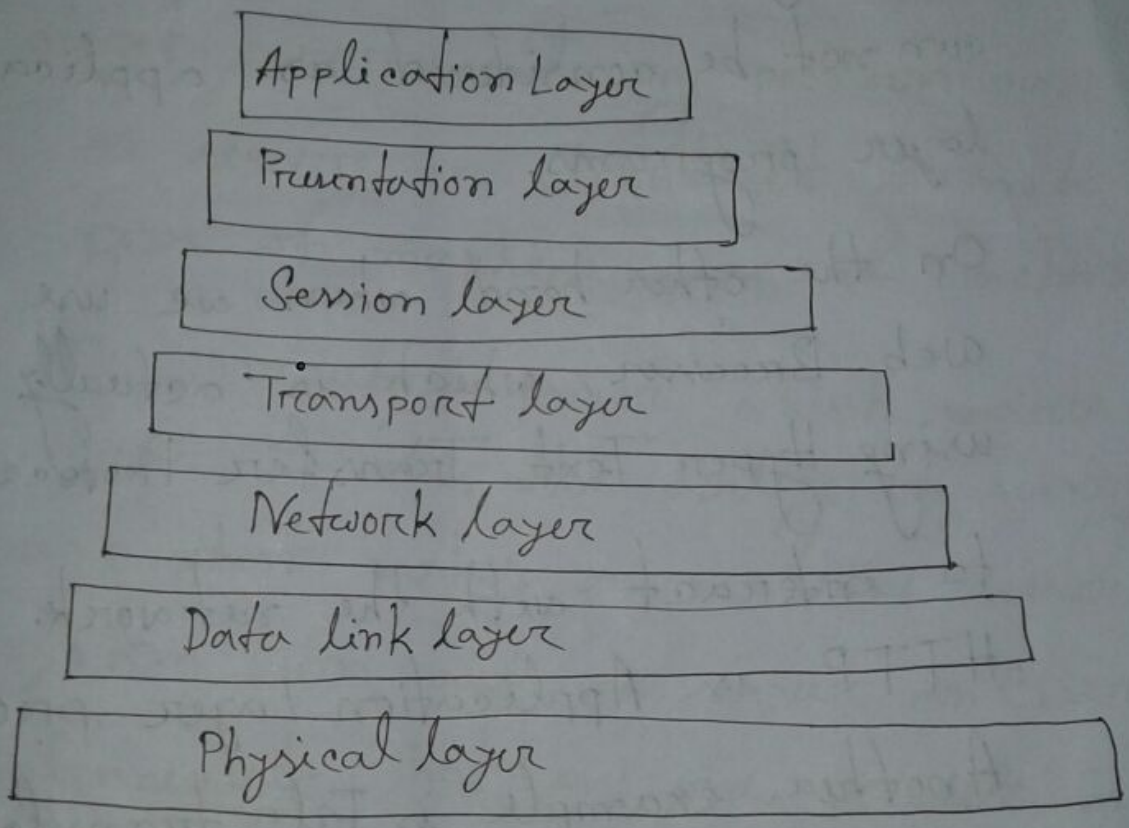
c) What do you mean HTTP. Explain it. 5

1 No Ans:

a) Application layer: Application layer is the top most layer in OSI and TCP/IP layered model. This layer exists in both layered models because of its significance and user application.
A user may or may not directly interacts with the application. Application layer is where the actual communication is initiated and reflects. Because this layer is on the top of the layer stack it does not serve any other layer.

b) When an application layer protocol wants to communicate with its peer application layer protocol on remote

host it hands over the data or information to the transport layer. The transport layer does not the rest. with the help of all the layers below it



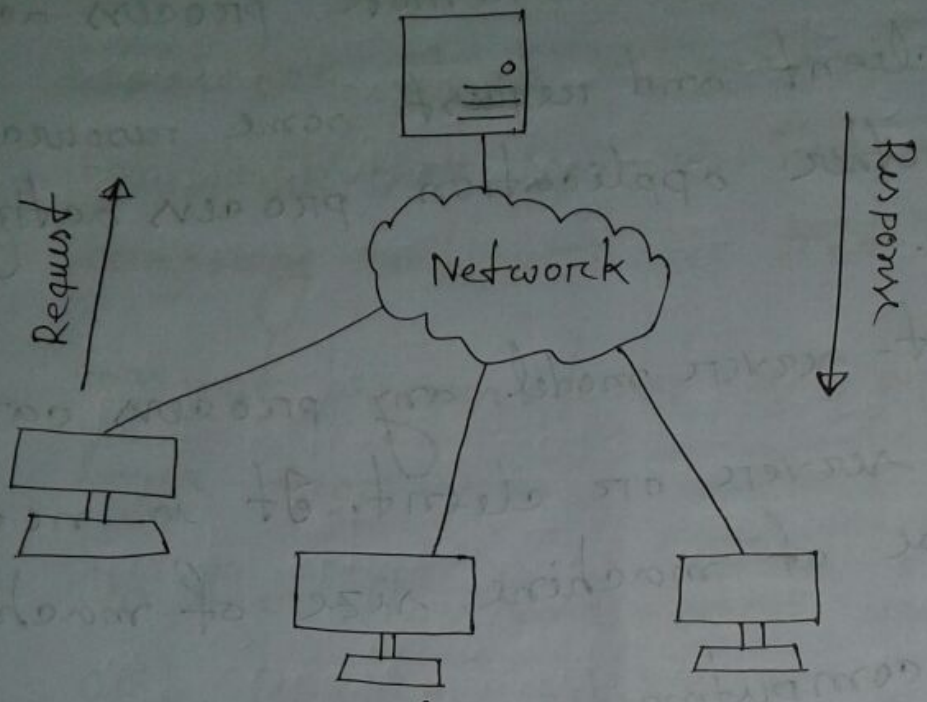
There is ambiguity in understanding Application layer on the protocol. Not every user application can be

put into Application layer. Except those application which interact with the communication system. For example, designing software or text-editor can not be considered as application layer programs.

On the other hand when we use a web Browser, which is actually using Hyper Text Transfer Protocol to interact with the network. HTTP is Application Layer protocol. Another example is File transfer protocol, which helps a user to transfer text based or binary files across the network.

c) client Server: One remote process acts as a client and request some resource from another application process acting a server.

In client-server model, any process can act as server or client. It is not the type of machine, size of machine or its computing power which makes it server. It is the ability of serving request that makes a machine server. A system can act as server or client simultaneously. That is, one process is acting as a client. This may also happen that both client and server process reside on the same machine.



2 No Ans:

a) Application Protocol: There are several protocols can be broadly divided into two categories.

i) Protocols which are used by users.

For email for example. eMail.

ii) Protocols which help and support protocols used by users. For example DNS.

Few of application layer protocolos are given below

Domain Name System, Simple Mail Transfer Protocol. etc.

b) File Transfer Protocol: The file transfer protocol is the most widely used protocol for file transfer over the network. FTP uses TCP/IP for communication and it works on TCP port 21. FTP works on client server Model where a client

requests file from Server and Server sends requested resource back to the client.

Post office Protocol (POP): The post office protocol version 3 is a simple mail retrieval protocol used by user Agents to retrieve mails from mail server.
When a clients needs to retrieve mails from server, it opens a connection with the server on TCP port 110. User can then access his mails and download them

to the local computer. POP3 works in two modes. The most common mode the delete mode, is to delete the emails from remote server after they are downloaded to local machine. The second mode, the keep mode, does not delete the email from mail server and gives the user an option to access mails later on mail server.

c) Directory Services: These services are mapping between name and its value which can be variable value or fixed. This software system helps

to store the information. organize it and provides various means of accessing it.

Accounting: In an organization, a number of users have their users names and passwords mapped to them. Directory services provide means of storing this information in cryptic from and make available when requested.

Authentication and Authorization: User credentials are checked to authenticate a user at the time of login and/or ~~pre~~ periodically. User

accounts can be set into hierachical structure and their access to resources can be controlled using authorization.

Domain Name Services: DNS is widely and one of the essential services on which internet works. This system maps IP address to domain names, which are easier to remember and recall than IP address. Because networks operates with the help of IP Address. The DNS provides website IP Address which is mapped to its name from the back-end on the request of a website name from the user.

Q 3 No Ans:

a) File services: File services include sharing and transfering files over the network.

File sharing: One of the reason which gave birth to networking was file sharing. File sharing enables its users to share their data with other users.

File transfer: This is an activity to copy or move file from one computer to another computer or to ~~mut~~ multiple computers.

b) Communication Services: Electronic mail is a communication method and something a computer user can not work without. This is the basic of today's internet features.

Social Networking: Recent technology have made technical life social. The computer savvy people can find other known peoples or friends, can connect with them. They can share picture ~~or~~ or videos.

Internet chat: Internet chat provids instant text service between two

two hosts. Two or more people can communicate with each other using text based Internet chat service. These days, voice chat and video chat are very common.

Discussion Boards: Discussion boards provide a mechanism to connect multiple people with same network.

Remote Access: This services enables user to access the data residing on the remote computer. This feature is known as Remote desktop. This can be done via some remote device mobile phone or home computer.

c) Hyper Text Transfer Protocol (HTTP):

The Hyper Text Transfer protocol is the foundation of World Wide Web. Hypertext is well organized documentation system which uses hyperlink to link the gap. HTTP works on client server model. When a user wants to access any HTTP page on the internet, the client machine at user end initiates a TCP connection to server on port 80. When the server accepts the clients request the client is authorized to access web pages.

Name: Nandon kumar Pal
ID: IT-18022
chapter- 1

Question no 4-

a) Define data communication and computer network. 3

b) Why to learn Data Communication and computer network? 5

c) Mention the Application of Communication and computer network. 6

Question no- 5

a) Define DCN. Explain it briefly. 3

b) Mentioned various type of computer network and explain every type of. 8

c) Explain about internetwork and internet service. 3

Question no- 6:

a) Describe various type of LAN technologies. 6

b) What do you mean by network technology. Write type of technology and describe every type of techlogy. 8

Question no-7:

a) What do you mean by OSI model? Describe every OSI model. 6

b) Briefly describe about layered tasks. 2

c) What do you mean internet model? Describe different type of layer internet model. 6

Question no - 8:

a) Describe computer network security. Describe all categories of security threats. 6

b) Briefly describe about secret key encryption. 6

c) Describe cryptography 2

Q No Ans:

a) Data communication: Data communication refers to the transmission of this digital data between two or more computers. A computer network is a telecommunication network that allows computers to exchange data.

i) Network Basic understanding: A system of interconnected computers and such as printers is called computer network.

Q No Ans:

a) Data communication: Data communication refers to the transmission of this digital data between two or more computers. A computer network is a telecommunication network that allows computers to exchange data.

i) Network Basic understanding: A system of interconnected computers and such as printers is called computer network.

b) Application of communication and computer network:

i) Resource sharing such as printers and storage devices.

ii) Exchange of information by means of e-mail and FTP.

iii) Information sharing by using web or internet.

iv) video conferences.

v) Parallel computing.

vi) Instant messaging.

c) Computer network: A system of interconnected computers such a printers is called computer network.

Type of computer network:

i) Geographical span: It may be spanned across your table, among bluetooh enabled devices ranging not more than few meters. It may be spanned across a whole city. It may be one network covering whole world.

ii) Inter connectivity: components of a network can be connected to each other differently in some fashion. Every single device can be connected to every other device on network making the network. mesh.

iii) Administration: From an administration's point of view. a network can be private network which belongs a single autonomous system.

iv) Network Architecture: There can be one or more system acting as server.

5 No Ans:

a) DCN: DCN means dynamic circuit network. DCN is Advanced computer networking technology that combines packet-switched communication based on the internet. Protocol as used in the internet with circuit-switched.

b) Different type of computer Network:

i) Personal area network.
ii) Local Area Network.
iii) Metropolitan Area Network.
iv) Wide Area Network.

c) The internet ~~grew~~ growth has become explosive and it seems impossible to escape the bombardment of www. com's seen constantly on television. heard of radio and seen in magazines. Because the internet has become such a large of our lives a good ~~under~~ understanding is needed to use this new tool most effectiv This whitepaper explains the underlyi ~~infra~~ infrastructure and technologies that make the internet work. It does not go into great depth, but covers enough of each ~~area~~ area to give basic understanding of the concept involved.

6 No Ans:

a) The lan technologies will assist the device on the network ~~comini~~ communicate with each other. There LAN technologies is special combinations of software and hardware which makes the network perform at a specific speed and in the certain way. There are four types of frames.

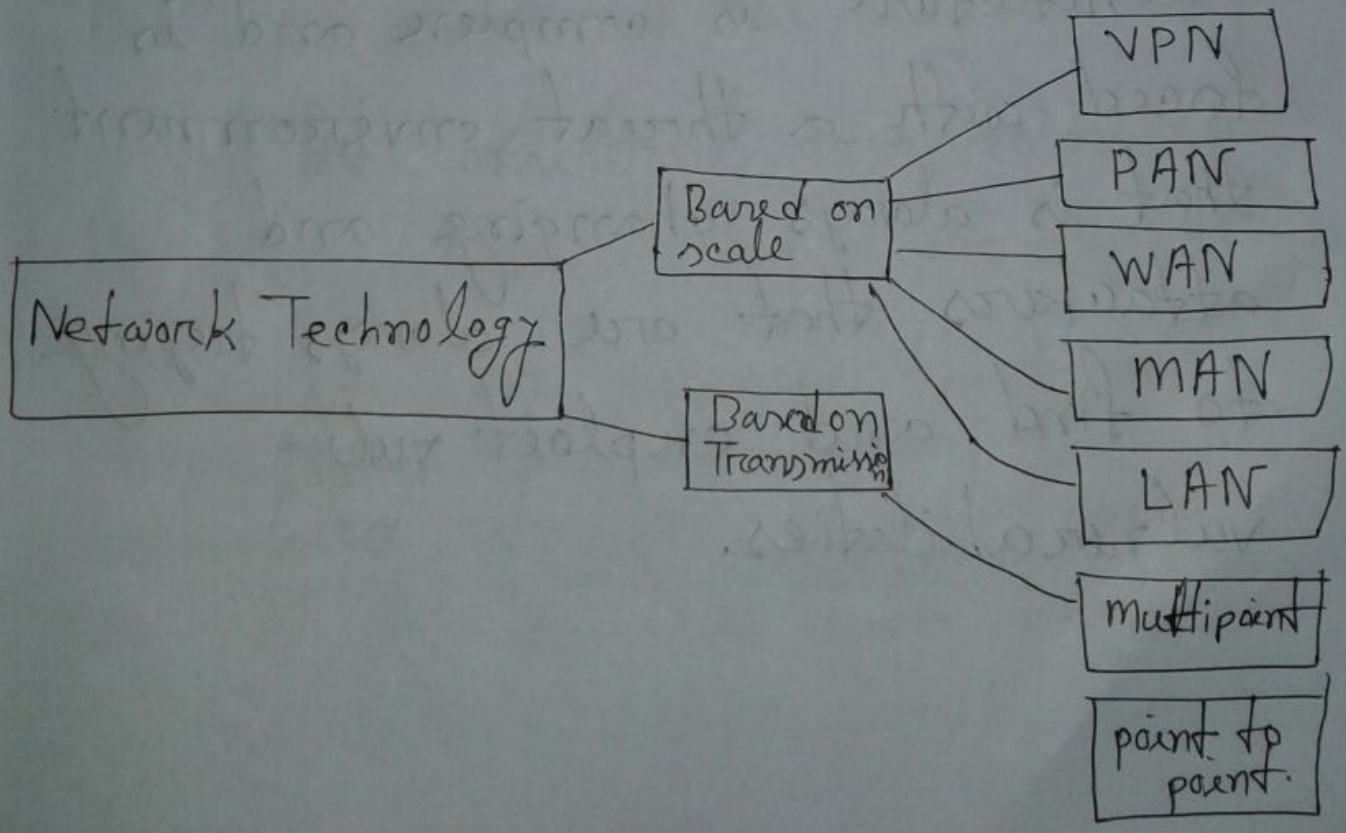
10 Base T: It is one among several adaptations of standard Ethernet for the local LAN's. This 10 Base is also known as twisted pair ethernet. This cable more flexible and thinner when compared to the coaxial cable.

100 Base T : It functions at a rate 100 mbs speed. It is also known as fast Ethernet. This implies that the designation refers to both the fiber and copper based ethernet version. 100 Base T based on the CD LAN method.

1000 Base T : It is a cheaper version of the Gigabit ethernet, which is used the IEEE 802.3ab standard. It uses a pairs of category 5 unshielded twisted pair to accomplish the Gigabit data rate.

b) Network Technology: The technology which is used to exchange the data between small and large information. This technology can be used in educational institutions as well as business. Network technicians know the installation, configuration and troubleshooting of the network technology.

Types of network technology:



8 No Ans:

a) Computer Network security: Network security is a broad term that covers a ~~multi~~ multitude of technologies, Devices and processes. In its simplest term. It is a set of rules and configurations designed to protect the integrity. To day's network architecture is complex and is faced with a threat environment that is always changing and attackers that are always trying to find and exploit ~~vul~~ vulnerabilities.

b) Secret key Encryption: In secret key encryption, since the same key is used to encrypt and decrypt, proper safeguarding and distribution of that key is of paramount importance. If the key is shared with unauthorized or unintended recipients at any time during the information's life cycle. The protection of the information must be considered compromised. A compromised data protection or encryption process that is considered to be compromised, can not be of the data being encrypted.

c) Cryptography: Cryptography is associated with the process of converting ordinary plain text into unintelligible text and vice-verse. It is a method of storing and ~~tram~~ transmitting data in a particular form so that only those for whom it is intended can read and process it.