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Assignment No – 01

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# Assignment-1

## Set-1

a) What is DCN?

b) Application of communication & computer Networks.

c) Classification of computer Networks.

## Answer

a) Data communication refers to the transmission of this digital data between two or more computers and a computer network or data

network is a telecommunications network that allows computers to exchange data.

b) Applications of communication and computer networks

(i) Resource sharing such as printers and storage devices.

(ii) Exchange of information by means of e-mails and FTP

(iii) Information sharing by using web or internet

(iv) Interaction with other users using dynamic web pages.

(v) IP phones

(vi) Video conferences

(vii) Parallel computing

(viii) Instant messaging

(c) Classification of computer networks.

(i) Geographical span

(ii) Inter-connectivity

(iii) Administration

(iv) Architecture

Set 2

a) what is network Topology?

b) what are Routers?

c) How many Topology are available?

d) what is HTTP and what port does it use?

Answers

a) Network is defined as a set of devices connected to each other using a physical transmission medium.

A computer network is a group of computers connected with each other to communicate and

share information and resources like hardware, data and software. In a network, nodes are used to connect two or more networks.

b) The router is a network device that connects two or more network segments. It is used to transfer information from the source to the destination.

Routers send the information in terms of data packets and when these data packets are forwarded from one router to another router then the

router reads the network address in packets and identifies the destination network.

c) A network topology is the arrangement with which computer systems or network devices are connected to each other.

(I) point to point Topology

(II) Bus Topology

(III) Star topology

(IV) Ring Topology

(V) Mesh Topology

(vi) Tree Topology

(vii) Daisy chain

(viii) Hybrid Topology

d) HTTP is hypertext Transfer protocol and it is responsible for web content. Many web pages are using HTTP to transmit the web content and allow the display and navigation of Hypertext. It is the primary protocol and port used here is TCP port 80.

Set-3

a) what is DNS?

b) Explain OSI model.

c) what is secret key Encryption.

Answer

a) Domain Name server (DNS) is a non-professional language and we can call it an Internet's phone book. All the public IP addresses and their hostnames are stored in the DNS and later it translates into a corresponding IP address.

There is a central Registry where all the domain names

once stored and it gets updated on a periodic basis.

b) OSI Model—

Open system interconnect is an open standard for all communication systems. OSI model is established by International standard Organization (ISO). This model has seven layers.

Application layer:

This layer is responsible for providing application user. This layer encompasses protocols which directly interact with the user.

presentation layer:

This layer defines how data in the native format of remote host should be presented in the native format of host.

Session layer:

This layer maintains sessions between remote hosts. For example, once user password authentication is done, the remote host maintains this session for a while and does not ask for authentication again in that time span.

Transport layer:

This layer is responsible for end to end delevery between hosts.

Network layer:

This layer is responsible for address assignment and uniquely addressing hosts in a network.

Data link layer:

This layer is responsible for reading and writing data from and onto the line. Link errors are detected at this layer.

physical layer:

This layer defines the hardware, cabling wiring, power output, pulse rate etc.

c) secret key Encryption

These Both sender and receiver have one secret key. This secret key is used to encrypt the data at sender's end. After the data is encrypted it is sent on the public domain to the receiver. Because the receiver knows and has the secret key, the encrypted data packets can easily be decrypted.

set-4

a) what do you mean by multiplexing
b) what is fiber optics?
c) Explain different types of transmission.

Answer

a) Multiplexing is a technique by which different analog and digital streams of transmission can be simultaneously processed over a shared link. Multiplexing devides the high capacity medium into low capacity logical medium which is then shared by different steams

Communication is possible over the air using a physical media and light. All mediums are cabable of multiplexing.

b) Fiber optics works on the properties of light. When light ray hits at critical angle it tends to refracts at 90 degree. This property has been used in fiber optic. The core of fiber optic cable is made of high quality glass or plastic. From one end of it light is emitted.

c) Wireless transmission is a form of unguided media. Wireless communication involves no physical link established between two or more devices, communicating wirelessly. Wireless signals are spread over in the air and are received and interpreted by appropriate antennas.

Radio transmission —

Radion frequency is easier to generate and because of its large wavelength. It can penetrate through walls and structures alike. Radio waves can have wavelength from 1mm – 100,000 km and

have frequency ranging from 3Hz (Extremely low frequency) to 300 GHz (Extremely High frequency). Radio frequencies are sub divided into six bands.

Microware transmission:

Electromagnetic waves above 100 MHz tend to travel in a straight line and signals over them can be sent by beaming those waves towards one particular station. Because microwaves travels in straight, both sender and receiver must be alligned to be strictly in line of sight.

Infrared transmission:

Infrared wave lies in between visible light spectrum and microwaves. It has wavelength of 700nm to 1mm and frequency ranges from 300 GHz to 430THz.

Light transmission:

Highest most electromagnetic spectrum which can be used for data transmission is light or optical signaling. This is achieved by means of laser.

Set-5

a) what is internet model?

b) Explain the layers of Internet model.

c) what do you mean by cryptography.

Answer

a) Internet uses TCP/IP protocol suite, also known as Internet suite. This defines internet model which contains four layered architecture. OSI model is general communication model but Internet model is what the internet uses for all its communication.

b) Internet model has the following layers:

Application layer:

This layer defines the protocol which enables user to interact with the network.

Transport layer:

This layer defines how data should flow between hosts. Major protocol at this layer is transmission control protocol (TCP). This layer ensures data delivered between hosts is in order and is responsible for end to end delivery