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INTRODUCTION TO ICT

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(1)

Q.1 **Multimedia**

- * Media is something that can be used for a presentation of information
- * Two basic ways to present some information are
- * **unimedia presentation**: Single media is used to present information
- * **Multimedia presentation**: More than one media is used to present information
- * multimedia presentation of any information greatly enhance the comprehension capability of the user as it involves use of more of our senses
- * Common media for storage access and transmission of information are
- * text (alphanumeric characters)
- * graphic (line drawing and images)
- * Animation (moving images)
- * audio (Sound)

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- * video (videographic real life events)
- * multimedia in information technology refers to use of more than one of these media for information presentation to users.

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Q 2 :

Relationship Between Hardware and Software

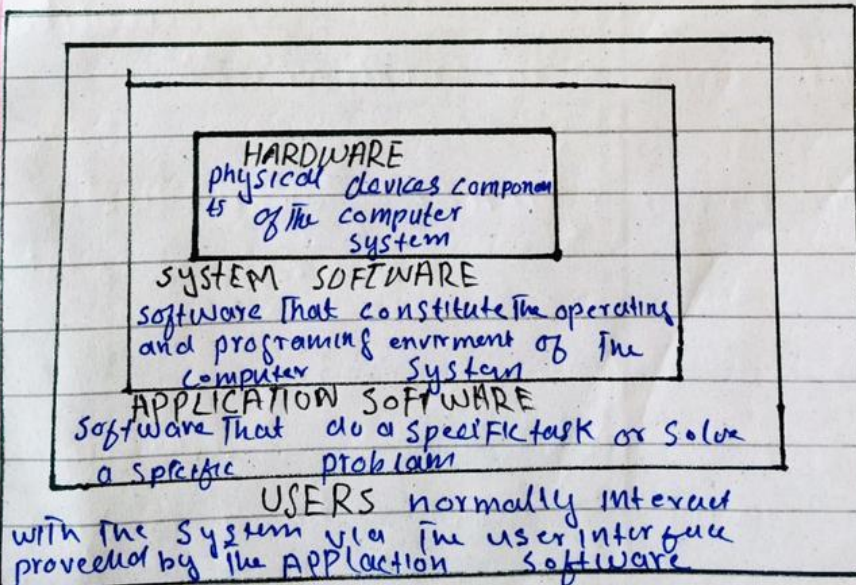
- * Both Hardware and Software are necessary for a computer to do useful job. They are complementary to each other.
- * Some hardware can be loaded with different software to make a computer system perform different types of job.
- * Except for upgrade hardware is normally a one time expense whereas software is a continuing expense.
- * upgrade refer to renewing or changing components like increasing the main memory or hard disk capacities or adding speaker modems etc.

Types of Software

* System Software are designed to control the operation and extend the processing capability of a computer system.

* Application Software are designed to solve a specific problem or to do a specific task.

Logical System Architecture



Relationship among hardware System Software Application Software and users of a computer system

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Q 3: A:

Modulation Techniques

(1) Amplitude modulation (AM): Two binary values (0 and 1) of digital are represented by two different amplitudes of the carrier signal, keeping frequency and phase constant.

(2) Frequency modulation (FM):

Two binary values of digital data are represented by two different frequencies, while amplitude and phase are kept constant.

(3) phase modulation (PM):

Two binary values of digital data are represented by shift in phase of carrier signals.

* Modem is short for Modulator/Demodulator.

* Special device is used for conversion of digital data to analogue data from (modulation) and vice-versa (demodulation).

(b)

* Essential piece of hardware where two digital devices (say to computer) want to communicate over an analogue transmission channels (say to telephone line).

B**Multiplexing:-**

- * Method of dividing physical channel into many logical channels so that a number of independent signals may be simultaneously transmitted.
- * Electronic device may be perform multiplexing as know as multiplexer.
- * multiplexing enables a single transmission medium to currently transmitted data between several transmitters and receivers.

Basic methods of multiplexing:

there are two basic methods of multiplexing.

(1) Frequency division multiplexing (FDM):

Available bandwidth of a physical medium is divided into several smaller disjoint logical bandwidth is used as a separate communication link.

(2) Time division multiplexing (TDM):

Total time available in a

(8)

Channel is divided among several users, and each user of the channels is allotted a time slice during which he may transmit a message.

Demultiplexing:-

Demultiplexing is the reverse of the multiplex process - combining multiple unrelated analog or digital signals stream into one signal over a single shared medium such as a single conductor of copper wire or fiber optic cable. Thus, demultiplexing is re-converting a signal containing multiple analog or digital signal streams back into the original separate and unrelated signals. Although demultiplexing is the reverse of the multiplexing process because the multiplex signals are not related it is not the opposite of multiplexing.

C:

Switching Techniques:-

- * Data is often transmitted from sources to destination through a network of intermediate nodes.
 - * Switching techniques deal with the methods of establishing communication links between the sender and receiver in a communication network.
- Three commonly used switching techniques are the following.

(1) Circuit Switching:

Dedicated physical path is established between sending and receiving stations through sending and receiving stations through nodes of the network for the duration of communication.

(2) Message Switching:

Sender appends receiver's destination address to the message and it is transmitted from source to destination either by store-and-forward

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method or board cast method

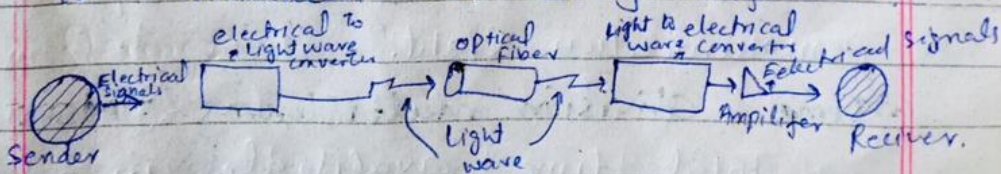
(3) packet switching:

message is split into fixed size packet is transmitted independently from source to destination node. First store-and-forward from board-cast method is used for transmitting the packets. all the message of the packets are re-assembled into original message at the destination node.

D

optical fiber communication system

optical fiber communication is a method of transmitting information from one place to another by sending pulses of infrared light through an optical fiber. the light is a form of carrier wave that is modulated to carry information.



Qu

The OSI model

- * The open system interconnection (OSI) model is framework for defining standards linking heterogeneous computer in a packet switched networks
 - * Standardized OSI protocol make is possible for any two heterogeneous computer system located anywhere in the world to easily communicate with each other
 - * Separate set of protocol is defined for each layer in it's seven layers architecture each layer has an independent function
 - * Developed in 1980s by ISO
 - * it consist of 7 layers
- Types of layers:-
- ① Application to Layers
- * it a top most layers of OSI model

- * Its provide Service directly to user Application
- * Its enable user to Access the Network
- * Its provide user interface and Support for Service such as Email Remote file access and transfer and other type distributed information Service

(2) presentation Layers

- * This layer Receive data from Application Layer
- * It perform Three Service function

(1) data translation

(2) Data Compression

(3) encryption

(3) Session Layer: responsible for dialog control Synchronization eg. beginning maintaining and ending the communication

btw two device called Session

* When Sending device first Content with Receiving device it Sendsyn (Synchronizing packet) to establish A Connection and determine the order in which information will be sent

* Receiver Send ACK Acknowledgement So the Session can be set and end

(4) transport layers :-

transport layers ensure the Reliability of communication through Segmentation error control and flow control provided process to process delivery

- (1) Segmentation
- (2) error control
- (3) flow control
- 4 Access control

(5) network Layer

network Layer Receive data from transport layers

- * it's responsible for establishing / terminating and maintaining network connection

- * its main. The delivery of Data from Source to destination

- * Common that are operate at this level are

IPv6, IPv4 and X.25

major functions of this Layer

- (1) logical Addressing
- (2) Routing

(6) Data Link Layer

it provide node to node delivery

- * it Receive data in the form of packet from network Layer.

- * it perform 4 function

- (1) framing
- (2) flow control
- (3) error control

(7) **physical layers:-** it is
The last layer of OSI
model.

- * physical layer convert
Stream of bit into
Signal and transmit over
the physical medium
- * Common protocol used at this
level are IEEE 802, 802.2, FDDI
- * physical layer define the
Direction of transmission to
communication devices
- * and either Simplex Half
duplex and full
duplex.

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The End