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Subject # Introduction  
to ICT

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Q1) Write a note on Multimedia and its type with common for storage access and transmission in details.

Multimedia:-

Multimedia is the term used to describe two or more types of media combined into a single package usually denoting a combination of small or all of the following.

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## Types of multimedia:-

### \* Text:-

This refers to written documents, the words seen in handouts, powerpoint presentation, websites, and reports. One of the most simple types of media, text is also used to communicate the most information and appears in conjunction with visual aids.

### \* Audio:-

This is the sound that often accompany visual presentations. Sound by itself can be used in radio broadcasts or online audio files, but in multimedia presentations audio is used as a complementary media. Sound effects can help make a presentation more memorable, while hearing the main points of information spoken can help listeners focus.

## \* Still image:-

Photographs, taken either by digital or analog means, are an important part of multimedia productions. Well-placed visual aids can explain concepts with clarity.

## \* Animation:-

Animations are graphics that move, accompanied by audio effects.

## \* Video:-

Video mass media is used to spread interviews, create movies, and post personal updates to communicate business messages. Currently, businesses can use videos online or create CDs to spread for instructional use within their company.

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## \* Interactivity:-

The newest form of multimedia, Interactivity, is a computer based tool which allows users to choose to learn different parts of information on their own terms. By highlighting or choosing links and sections, users can manipulate the information environment, examining whatever knowledge is important to them.

Q2) what is relation b/w hardware and software and types of software with logical system architecture.

### Relationship between hardware and software:-

Essentially, computer software controls computer hardware. These two components are

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Complementary and cannot get independently of one another. In order for a computer to effectively manipulate data and produce useful output, its hardware and software must work together. Without software, computer hardware is useless.

Conversely, computer software cannot be used without supporting hardware. Similarly computer software has to be first be loaded into the computer's hardware and then executed. There are several categories of software, with the two main categories being operating system software, which make the hardware usable, and application software, which does something useful.

And type of software with logical system architecture.

A system architecture is the conceptual model that

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defines the structure, behavior and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structure and behaviours of the system.

## Types of Software :-

most software can be divided into two major categories:

### \* System Software :-

System software are designed to control the operation and extend the processing capability of the computer system.

### \* Application Software :-

Application software are

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designed to solve a  
do specific a problem or to  
specific task.

## Logical System Architecture:

### HARDWARE

(physical device / components  
of the computer system)

### System Software

(software that constitute  
the operating and programming  
environment of the computer  
system)

### Application Software

(software that do a  
specific task or solve  
a specific problem)

### USERS

(normally interact with the  
system via the user  
interface provided by the  
application software)

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~~Q1)~~ ~~AA~~

Q3) write a note on each of the following in detail.

a) Modulation Techniques:-

\* Amplitude modulation:-

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

\* Frequency modulation:-

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

\* Phase modulation:-

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



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Signal.

b) Multiplexing and  
De multiplexing:-

Multiplexing:-

- \* Method of dividing physical channel into many logical channels so that a number of independent signals may be simultaneously transmitted.
- \* Electronic device that performs multiplexing is known as a multiplexer.
- \* Multiplexing enables a single transmission medium to concurrently transmit data between several transmitter and receiver.

De-multiplexing:-

Demultiplexing is the reverse of the multiplex process. It is the process of combining multiple unrelated

Analog or digital signal streams into one signal over a single shared medium, such as a single conductor of copper wire or fiber optic cable.

c) Switching techniques:-

\* Data is often transmitted from source to destination through a network of intermediate nodes.

\* Switching techniques deal with the methods of establishing communication links b/w the sender and receiver in a communication network.

↳ Three commonly used switching techniques are:-

\* Circuit Switching:

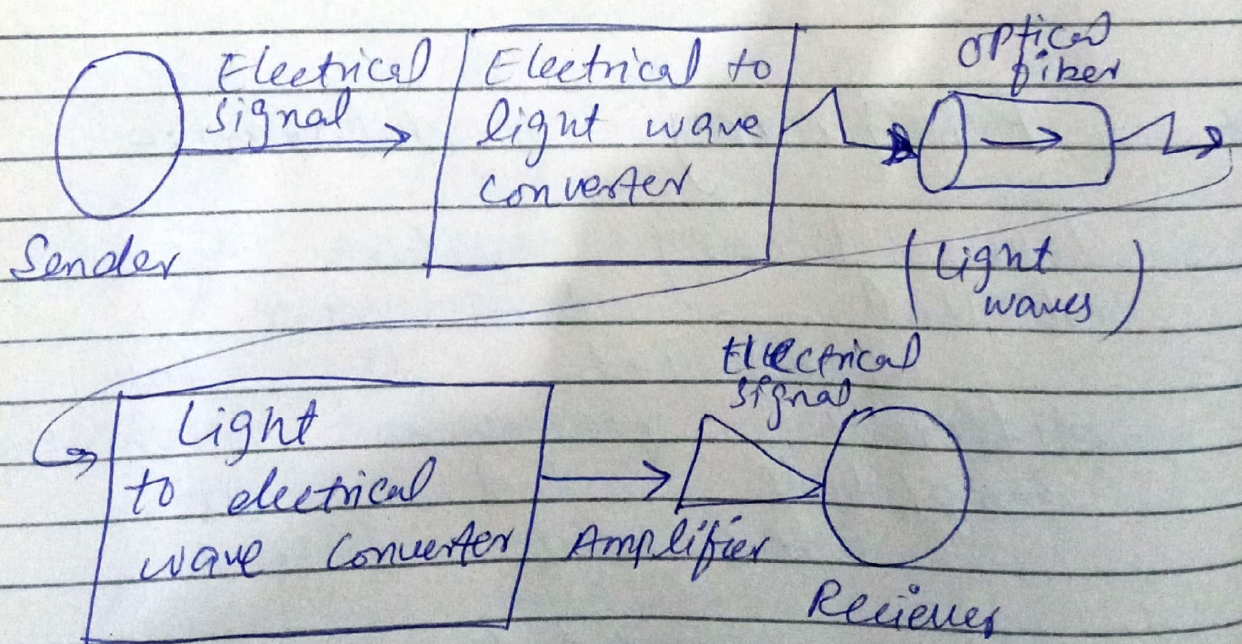
\* Switching message switching:

\* packet switching:

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## d) Optical Fiber Communication System:-

Fiber - optic communication is a method of transmitting from one place to another by sending pulses of Infrared light through an optical fiber. Optical fiber is used by many telecommunication companies to transmit telephone signals, internet communication, and cable television signals.



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Q4) What is OSI reference model explain each layer of OSI model in details.

OSI model:-

The OSI model is a logical and conceptual model that defines network communication used by systems open to interconnection and communication with other systems. The open system interconnections (OSI model) also defines a logical network and effectively describes computer packets transfer by using various layers of protocols.

7 layers of the OSI model

OSI model is layered system architecture in which each layer is defined according to a specific function to perform.

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All these seven layers work collaboratively to transmit the data from one layer to another.

Upper and lower layers further divide network architecture into seven different layers as below.

- \* Application
- \* Presentation
- \* Session
- \* Transport
- \* Network
- \* Data - Link
- \* Physical layers

### Application Layer:-

Application layer interacts with an application program, which is the highest level of OSI model.

The application is the OSI layer, which is closest to the end-user. It means OSI application layer allows user to interact with other software application.

## Physical Layer:-

The Physical layer helps you to define the electrical and physical specifications of the data connection. This level establishes the relationship b/w a device and a physical transmission medium. The Physical layer is not concerned with protocols or other such higher-layer items.

## Presentation Layer:-

presentation layer allows you to define the form in which the data is to exchange b/w the two communicating entities. It also helps you to handles data compression and data encryption.

## Session Layer:-

Session Layer controls the dialogues b/w computers. It helps you to establish starting and terminating the connections between the local and remote application.

## Network Layer:-

The network layer provides the functional and procedural means of transferring variable length data sequences from one node to another connected in different network.

## Transport Layer:-

The transport layer builds on the network layer to provide data transport from a process on a source machine to a process on a destination

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machine.

Data - Link Layer:-

Data link layer corrects errors which can occur at the physical layer. The layer allows you to define the protocol to establish and terminate a connection b/w two connected network devices.