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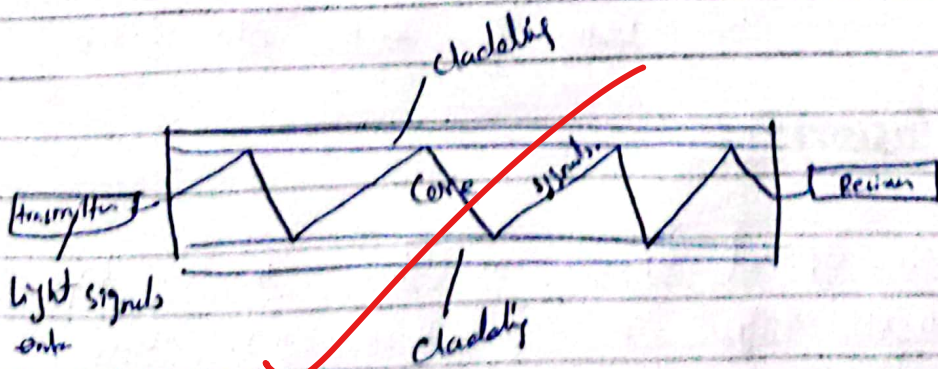
Question # 1(a)

Fiber Optics

Optical fiber is a technology through which information signals transmit from one end to other in a glass like fiber as thin as human hairs. In fiber optics signals travel through light rays.

Working of optical fiber:

In optical fiber signals enters through one end in a light rays. Here if signals hit to the walls of fiber there will be a total reflection which occurs and called total internal reflection. The signals due to critical angles do not get break or loose at any point due to total internal reflection the walls of optical fiber have core and cladding which keeps the light signals inside the optical fiber.



## Importance of fiber Optics:

- It is Cheaper

Fiber optics is cheaper in comparison to copper based wires, which makes it economical in nature.

- Requires less Space:

Optical fiber requires less space as compared to other cables, which makes it easier to adjust in narrow spaces.

- Less or no signal loss:

Due to total internal reflection there occurs a critical angle which leads to no loss of signals as information here travels in glass rays. So the information travels through optical fiber do not get lost.

- High Bandwidth:

In optical fiber cables it can transmit higher information units in a single mode as compared to other metal cables which increase the significance as to other cables.

## Conclusion:

In optical fiber information travels through light rays. The transmission occurs through total internal reflection. It has significant importance as it carries high bandwidth, it's cheaper.

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significant.

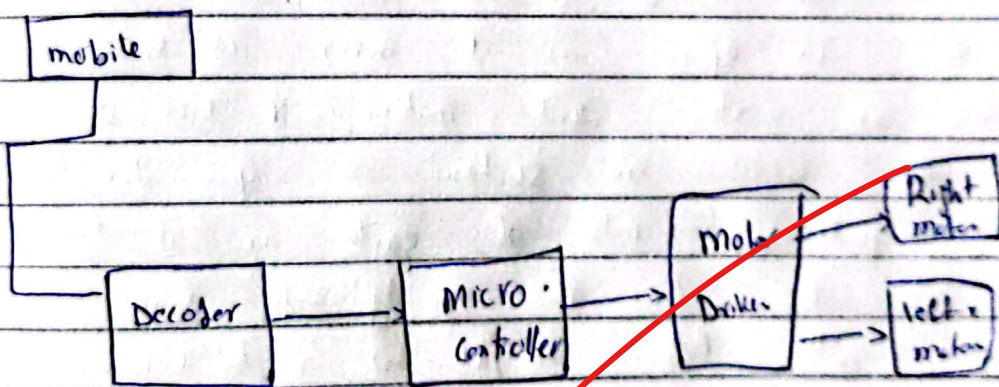
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### Cell Phone:

Cell Phone, a technology use to  
make, receive calls, to connect people  
together from afar. Here an area is divided  
into number of hexagonal shape. which  
has receiver and transmitter towers in it.  
and communicate to some to each other.

### Block diagram of Cell Phone:



Here the signals are received into  
decoder from mobile and converted from  
binary form and send the same to  
micro controller from where it goes to  
mobile driver and at the end it acts up to  
right miter and left miter. The  
mobile is used as a remote here.

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## Satellite

Def: when a small object revolves around a big object.

A satellite is an object which revolves around planet in orbital motion. Moon is an only natural satellite. On the other hand there are multiple satellites which are left in space for different usage such as to forecast weather, navigation, military use, and so on. There are different types of satellites which are currently working.

### Geo Stationary Satellites:

It is a satellite which looks like stationary in space as it moves in same direction as earth which makes it look stationary. All the satellites are stationary in space due to the gravitational pull of earth. As if there will not be force of gravity the same satellites will fall straight to earth surface.

## GPS

GPS stands for Global Positioning System. Its main feature is to calculate location of any object or device. Every GPS has its own computer, radio, and clock.

## Working Principles of GPS:

A Global Positioning System works best under 10 km. here satellite sends signal in radio waves. on earth the GPS receiver receives those signals and calculates the time and distance. this signal receiver takes time intervals from 3 different satellite to check actual time and distance and to calculate actual position.

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### Ram

- Stands for Random Access memory
- It is volatile, so as soon as the computer loses power this data is removed.
- Examples are: loading applications, browsing internet, playing games etc.
- It is used for tasks, it is fast, switch programs rapidly.
- It is used in applications editing data, documents.

### Rom

- Stands for Read only memory.
- It is non-volatile. so the data here stores permanently.
- Examples are ROM, EPROM, EEPROM.
- It is reliable storage source.
- It starts and off the programs.