

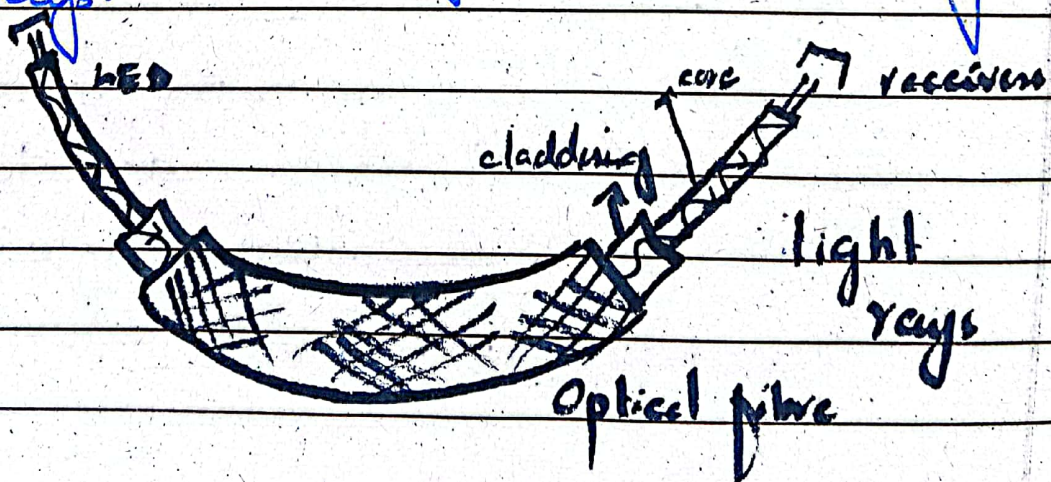
اور مسئلہ افزائی کے لیے  
یہ دہیں بار بار practice کر رہی ہیں۔ پلیز ٹیک

Qa) Define optical fibre. Also describe its working principle.

### Optical fibre

Optical fibres are strands of glasses that transmit light rays from one point to another point.

Optical fibres are glass strands. These are transmitting light rays from one point to other point for telecommunication purpose. Therefore, optical fibres are transmitting and receiving rays.





## Working process

Optical fibre work in two points:

### (i) Normal Angle

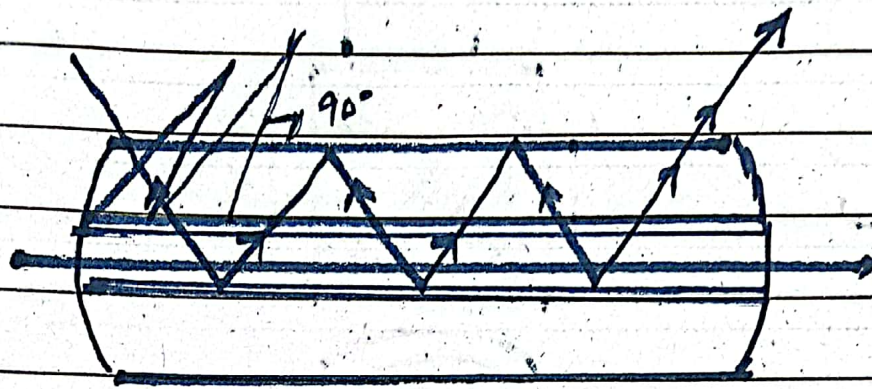
An angle through which light rays pass normally, known as normal angle.

### (ii) Critical Angle

"An angle in which light rays transmission and refraction equal to  $90^\circ$ ."

Critical angle is a point through which angle of incidence become equal to angle of refraction at  $90^\circ$ , known as critical angle.





• working principle  
of optical fiber

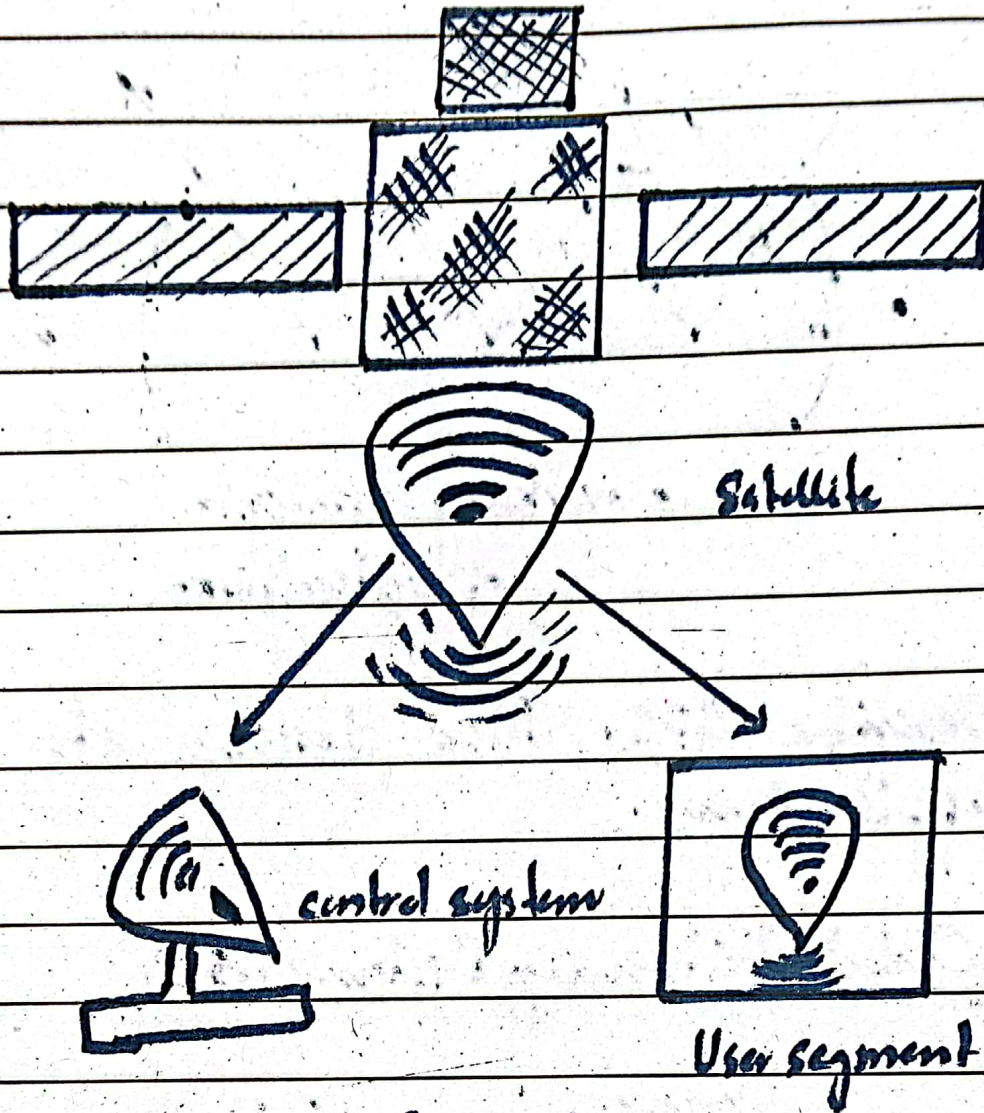
Qb) Describe "GPS". Also describe its applications.

Answer Global Positioning System (GPS)

"GPS is a navigation tool."

GPS is a navigation tool composed of at least 24 satellites. It was established by the US - Defence system in 1973 for military operations. Therefore, GPS is a navigation technology.





• GPS

## Applications of GPS

Following are

applications:

- i) GPS is used in traffic managing system.



ii) GPS is used to ensure security through atmosphere and environmental operations.

iii) GPS is used in telecommunication operations in receiving and transmitting signals.

iv) GPS is used in cargo shipping process.

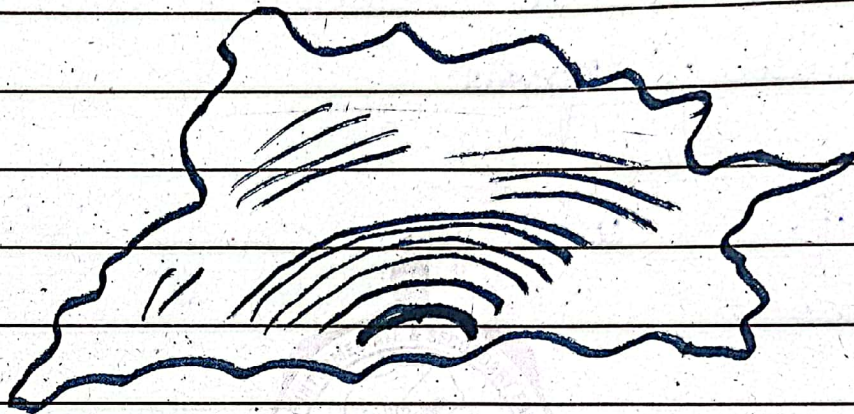
Q.5) What do you know about earthquake? Also describe Elastic Rebound theory.

## Earthquake

"Sudden release of energy in the form of seismic waves that creates vibrations in the earth crust."



Earthquake is a natural process. It is sudden release of energy in the form of seismic waves. Resultantly, earth vibrates in its crust.



• earthquake

### Elastic Rebound Theory

Elastic Rebound theory describes cause and process of earthquake as below:

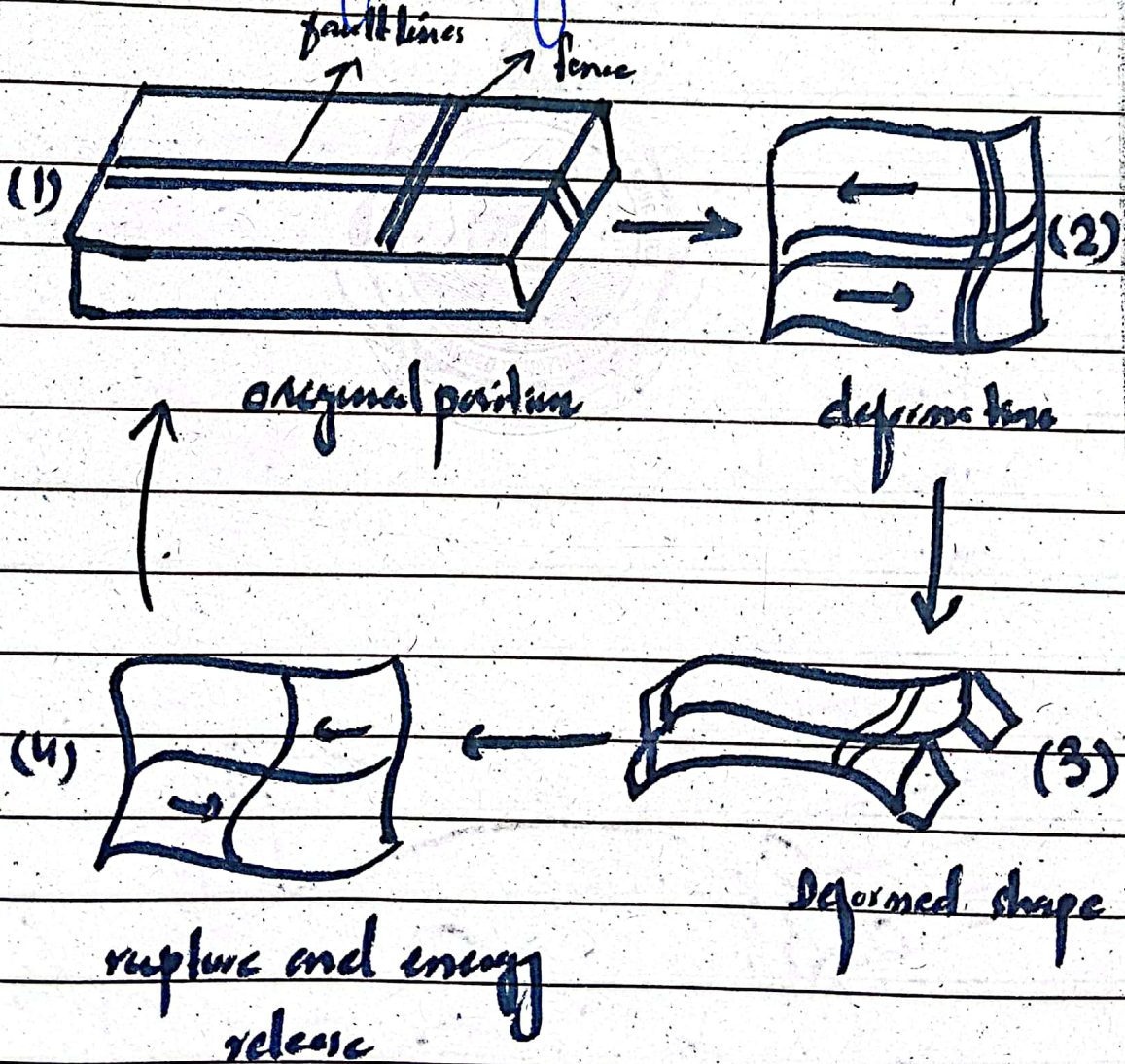
- 1) Due to release of elastic energy stored in earth rocks i.e. lithosphere produces force.



ii) Force breakdown itself and causes vibrations.

iii) later, these vibrations ruptures earth in its original position.

iv) Finally, energy releases outward in the form of seismic waves.



• Elastic Rebound Theory



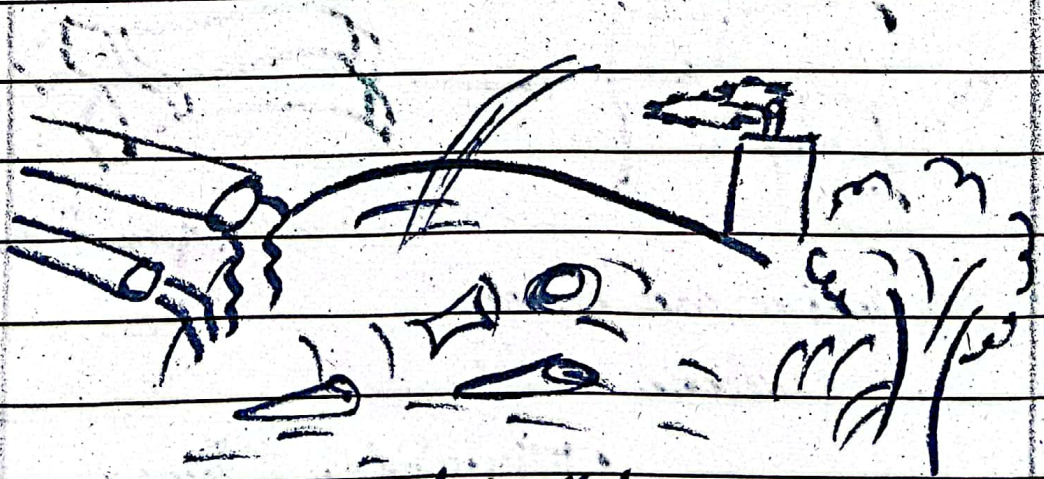


Qd) Describe water pollution. Also describe its types.

## Water pollution

"Unwanted and unpleasant change in quality of water, known as water pollution."

Water pollution is unwanted and undesired change in water. In fact, water loses its quality and becomes unable to use. Hence, dirty and low quality of water, known as water pollution.



• water pollution



## Types of water pollution

following are  
types:

### i) Physical source of water pollution

"Physical types are  
in the form of  
colour and taste."

low quality of water  
in the form and colour known  
as physical type of water  
pollution.

### ii) Chemical source of water pollution

"Chemical types are  
prevalent by  
use of chemicals."

Extra use of chemicals  
leading to water pollution.  
i.e., nitrate and sulphate



(iii) Biological source of water pollution  
"Biological water pollution  
are caused by growing  
microorganisms."

Biological water pollution  
is caused by microorganisms.  
i.e., algae and fungus



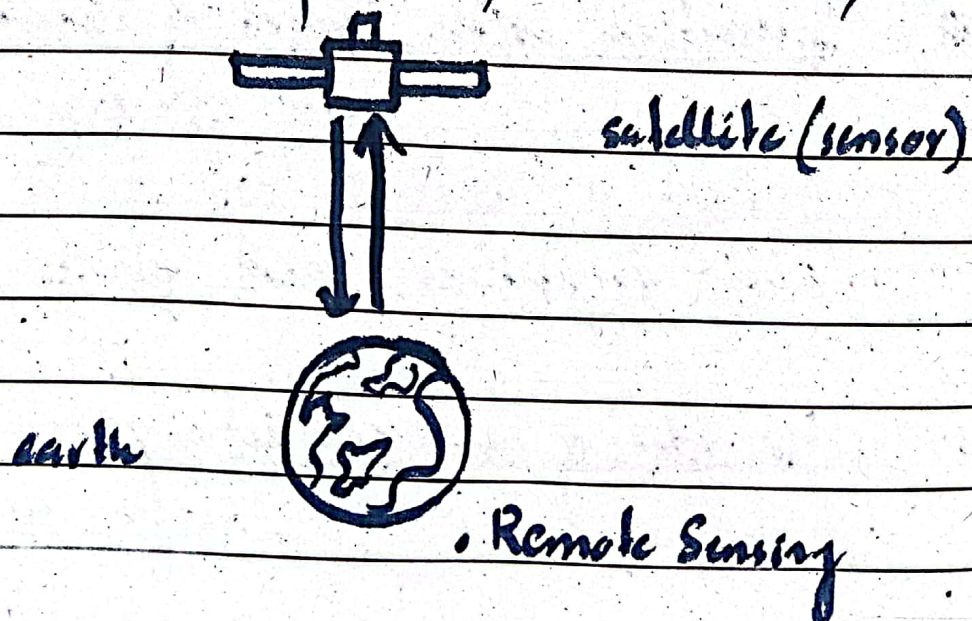
Qa) Define Remote sensing. Also describe its working principle

## Remote Sensing

"Remote sensing is a sensor user that is used to collect information of any geographic position."

Remote sensing is a process of using sensors (and to collect data of any geographic position.

i.e, earth, plains, mountains, etc





## Working principle of Remote Sensing

Working principle  
is as below:

- i) Source of energy  
Remote sensing operates on source of energy.  
i.e., sun's energy.
- ii) Interaction with atmosphere  
Remote sensing acts with interaction of atmosphere as energy source of sun.
- iii) Interaction with target of interest  
Water, energy hits target of interest on the earth.  
i.e., vegetation, and plants.
- iv) Recording and reflecting  
Energy as data.



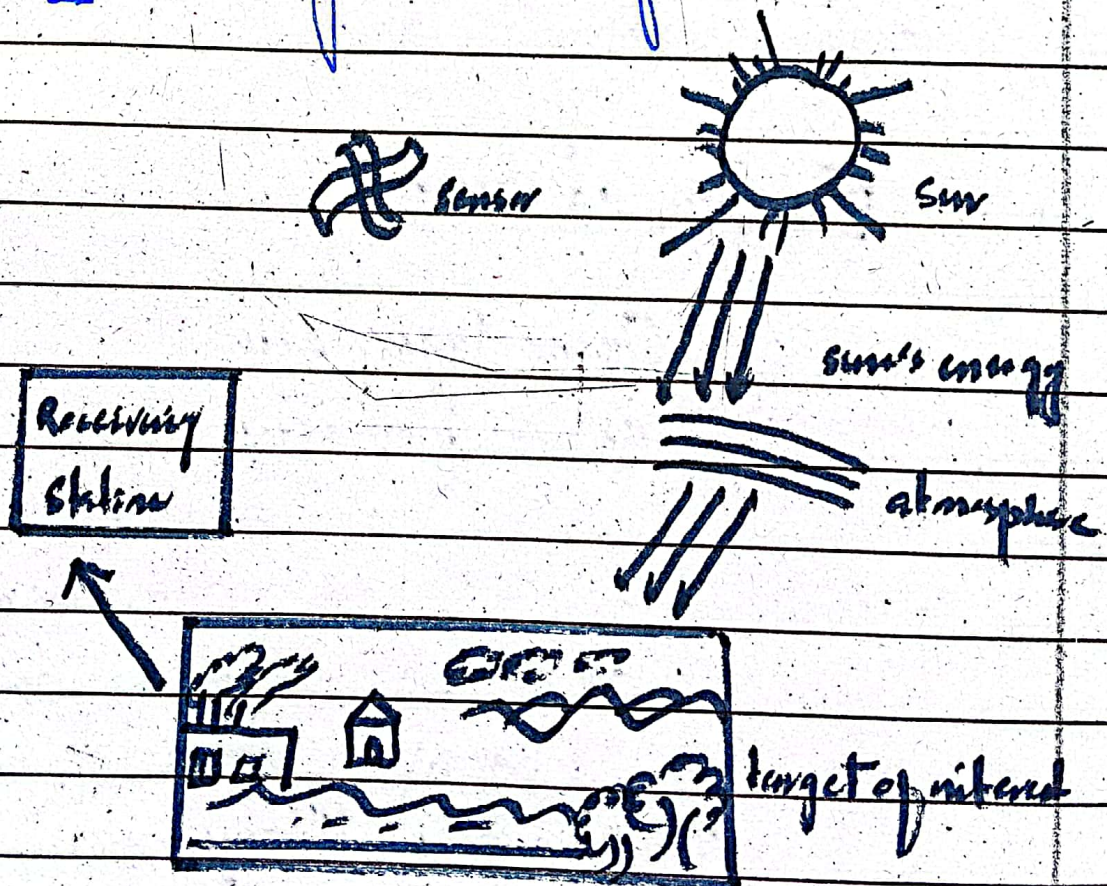
form recorded and some of its data reflected back.

v) Transmitting process

Data is transmitted to visualize sources and information.

vi) Receiving station

Data is transmitted for understanding whole information.



• Remote sensing working principle



Q b) Describe ozone. Also describe its function. How does ozone protect?

### Ozone

"Ozone is a gas composed of three oxygens ( $O_3$ )."

Ozone is a gas. It is composed of three oxygen atoms. Thus, ozone is a tri-atomic oxygen composed gas.

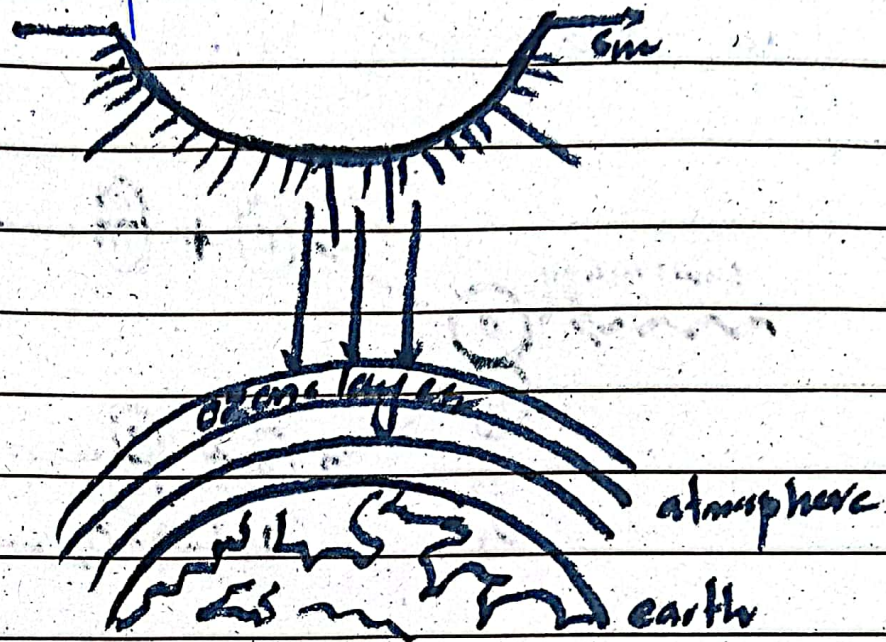
### Function of ozone

"Ozone layer acts as a blanket."

Ozone acts as a protective layer of the atmosphere. Moreover, ozone also protects the earth from harmful ultraviolet rays. Ozone blocks UV rays from reaching on earth."



Therefore, ozone protects the livable planet.



• ozone layer

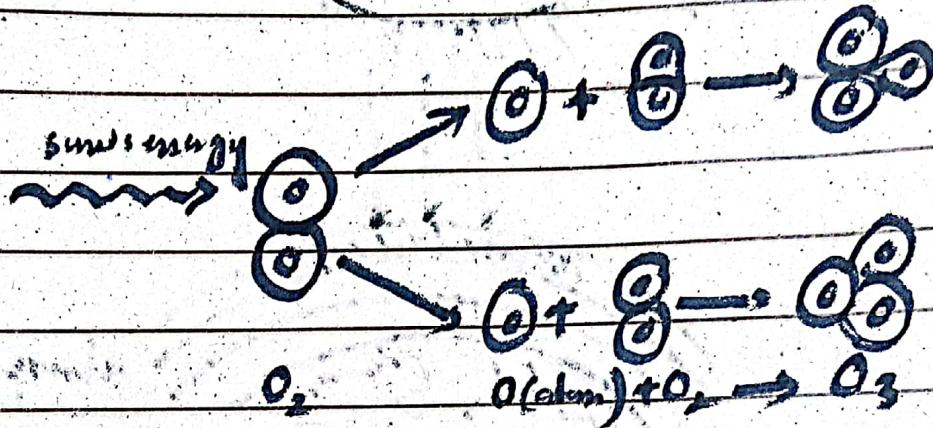
### Formation of ozone

"Sun's energy is a driving force of ozone formation."

Sun's energy hits oxygen molecule and breaks it into di-atomic oxygen atoms. Further, oxygen atom combines

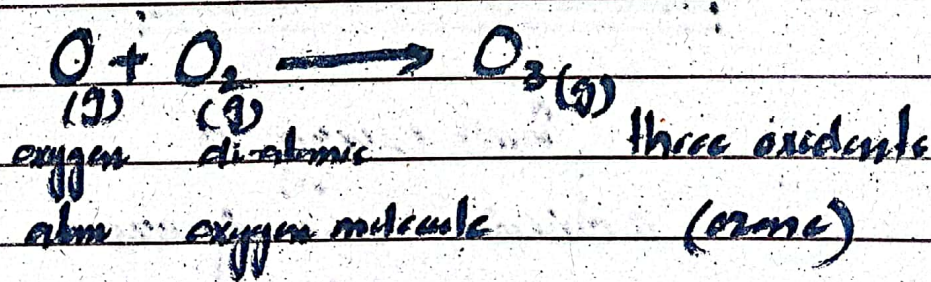


with oxygen molecule and leads to tri-atomic oxygen, known as ozone gas ( $O_3$ ).



### • ozone formation

According to chemical equation,



Therefore, ozone is formed as mentioned above.

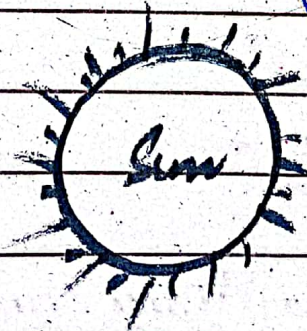


Qc) Describe Sun. Also describe some of energy in Sun.

### Sun

"Sun is a bright star."

Sun is a huge ball of very hot gases. It is a bright star. Moreover, it has own light and energy. Sun also provides energy and light to planets. Therefore, sun is a shining object.



### Source of energy of Sun

"Sun's energy is produced by nuclear process."



Source of energy of sun is a cyclic process. Energy is produced by fusion reaction. In fact, three smaller nuclei merge to form a larger nuclei.



(balanced equation)

Hence, energy is produced by cyclic process.

Qd) Define optical fibre. Also describe its uses.

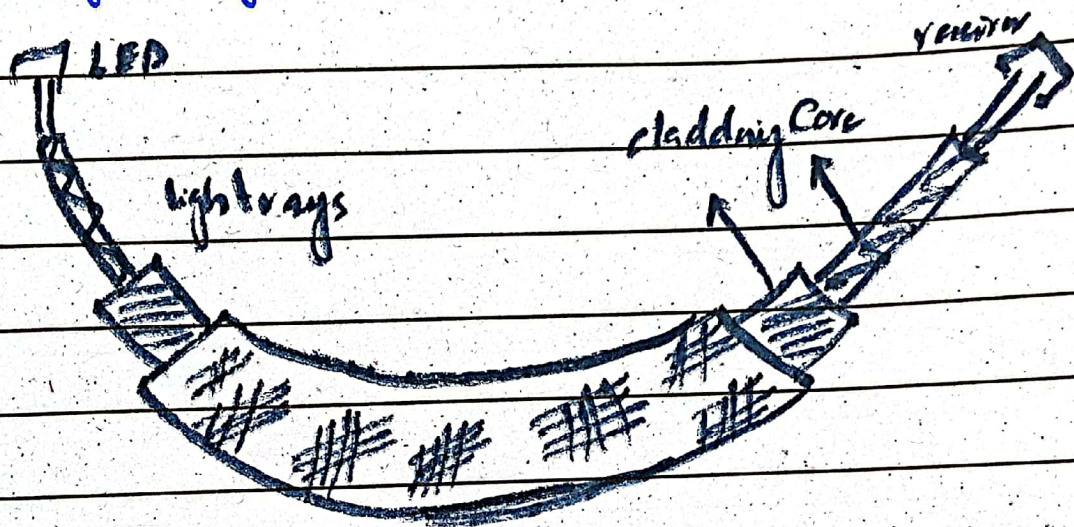
### Optical Fibre

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Optical fibres are stands of glass. These strands



transmit light rays from one point to other point for telecommunication purpose. Therefore, optical fibres are transmitting and receiving rays.



## Optical Fibre

### Uses of optical fibre

- i) Optical fibres are used in telecommunication purposes.
- ii) These are used for medical purposes i.e., visualize images of body.



- iii) Optical fibres are sources of receiving and transmitting waves.
- iv) Optical fibres also used in wiring construction.
- v) These are also used in hydrophones.
- vi) Optical fibres are also used in certain types of planes.