Very good
Increase length
Add headings
Draw diagrams
Write complete logic and steps in math portion

Q3

(a)

Global warming is a wild beast because humanity is at risk of theis survival. It is the result of man-made activity. The nature has set the composition of gases in the atmosphere, but with extensive industrialization and agriculture, human distub the composition of gases in atmosphere. The result of this disturbing is seen in everywhere as glaciess are melting and temperature of earth increasing day by day. According to IPCC, the temperature increased from 1850 to 2022 is 1.2°C and it can be increased upto 1.5° or 4.8°C at the end of 2100.

Impacts:-

1. Direct threat to life. 2. Melting of glaciers.
3. Rising global sea level 4. Direct threat to coastal life
5. Environmental refugess problems. 6. Extensive wild fires
7. Spread of diseases because no. of virual diseases and viruses because of galacies melting

Mitigation:-

Stabilizing the level of green house gases and it happened only when, theire is transition from fossile fuel to renewable energy sources. Moreover, more planation is useful to control the world temperation. Other than this, decarbonization of transport is preferable for fast control on the

global warming. Town planning and population growth control measure are required on urgent based. If these measure are taken on immediate condition, there is a chance that human control global warming.

(c).

Semi-conductors:

A material having electrical properties between insulator and conductor is known as semi-conductor.

Ex: Silicon, Germanium etc.

Types

(a) Intrinsic Semi-conductor:

A semi-conductor in its pure form is known as intrinsic semi-conductor.

Ex: Germanium and group IV element

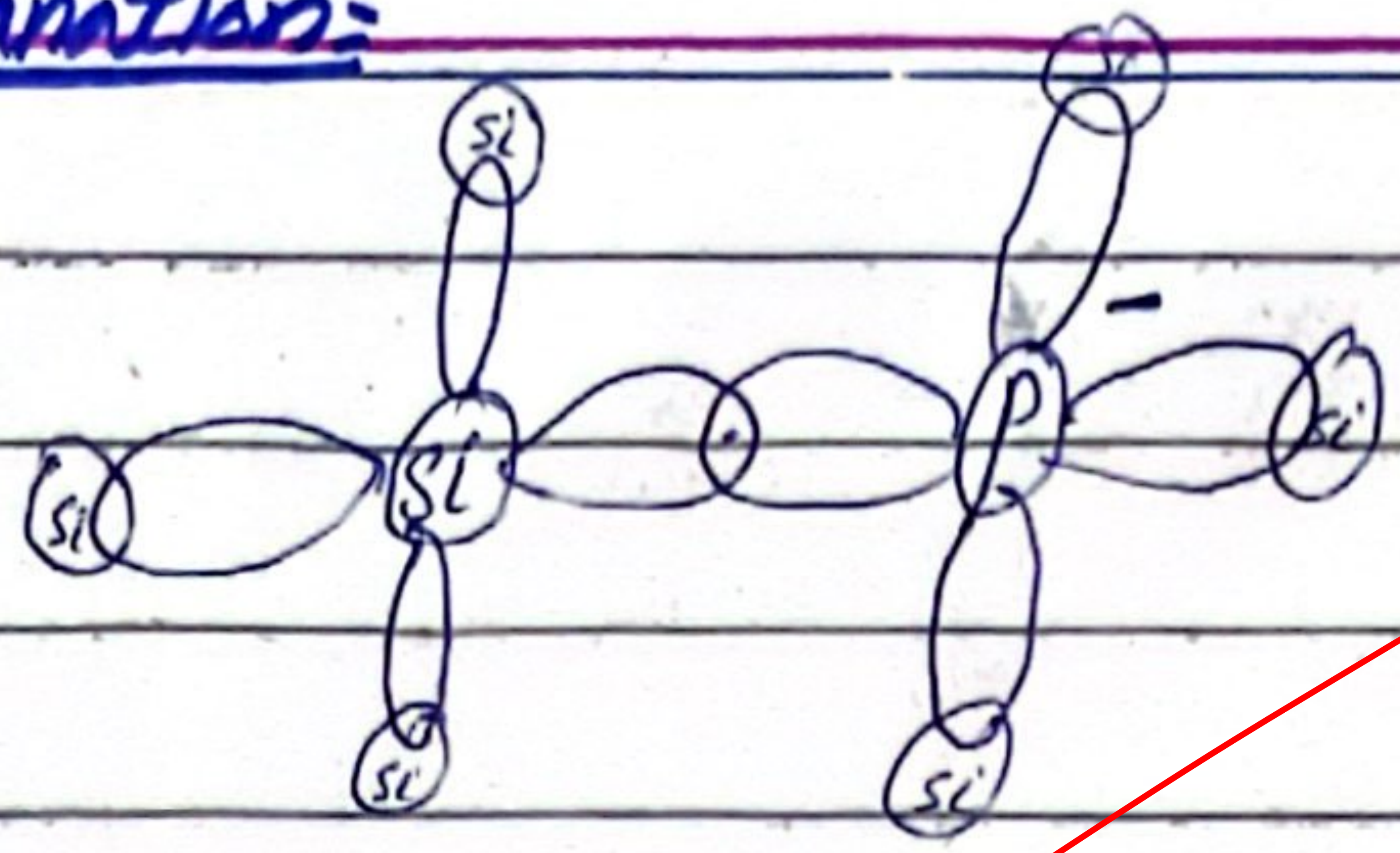
(b) Extrinsic semi-conductor:

When impurity is added in pure semi-conductor it is known as extrinsic semi-conductor. It is further divided into two types:

(a) N-type extrinsic semi-conductor:

When impurity added in pure semi conductor from V group of periodic table, then N-type extrinsic semi-conductor formed.

Explanation:-

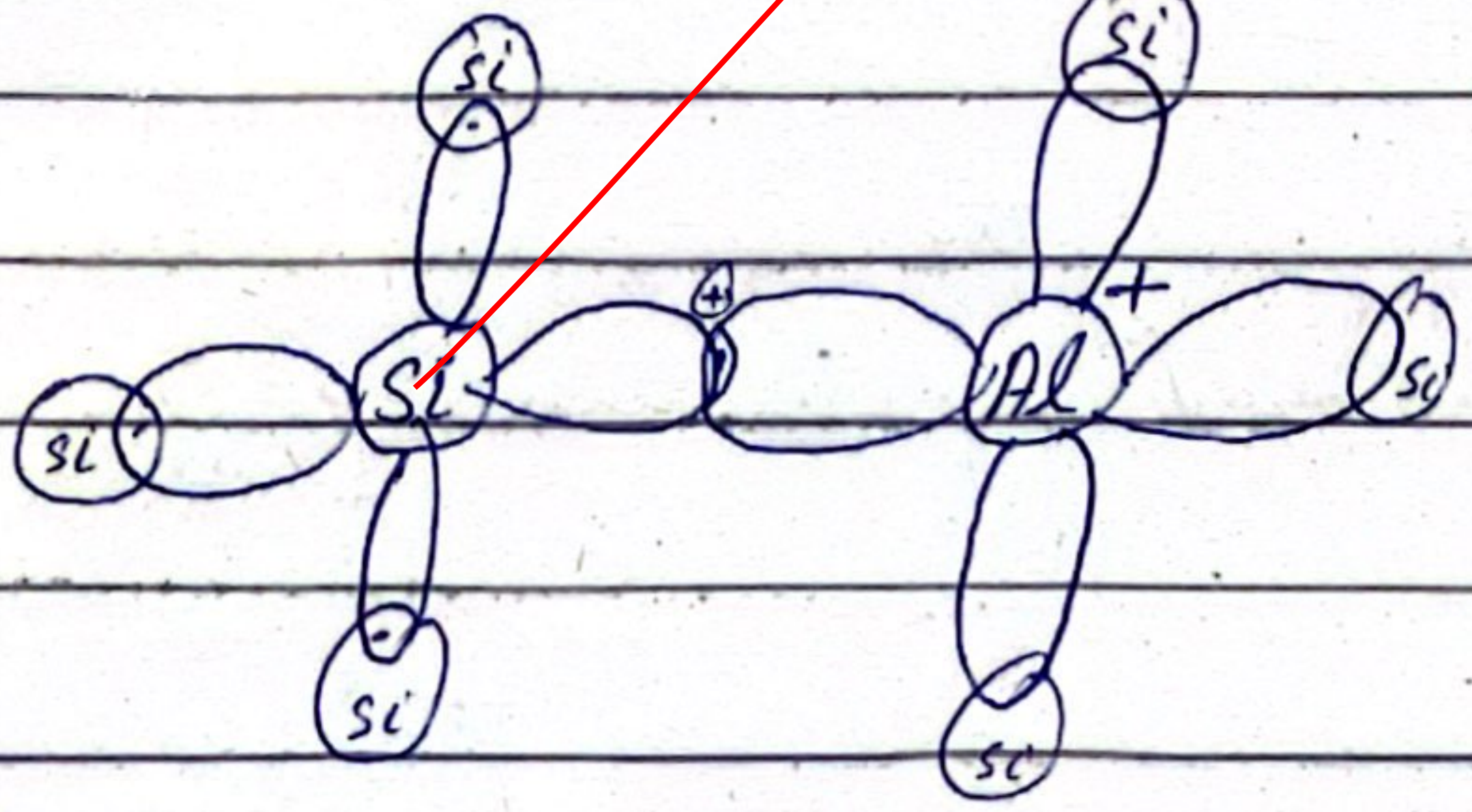


Phosphorus is the element which lies in V group of periodic table. It has five valence electrons in its outermost shell. When it is added in pure semi-conductor (si), it share foure of its valence electons and one still remained in its valence shell. Because of it, a negative sign is put on phosphorus. It has still one electron left for sharing.

P-Type Extrinsive Semi-conductor:-

When the impurity that is added in the pure semi-conductor comes from III group of periodic table, such semi-conductor is known as p-type extrinsive semi-conductor.

Explanation:-



Aluminium is III group member element and it has three valence electrons in its outermost shell.

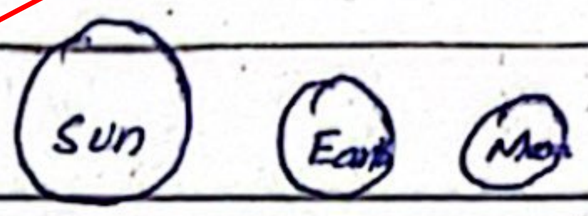
When it is added in pure-semi conductor like Si Then it has one hole left because of one electron deficiency. That's why, a positive (+) sign is put on it.

(d)

Eclipse=

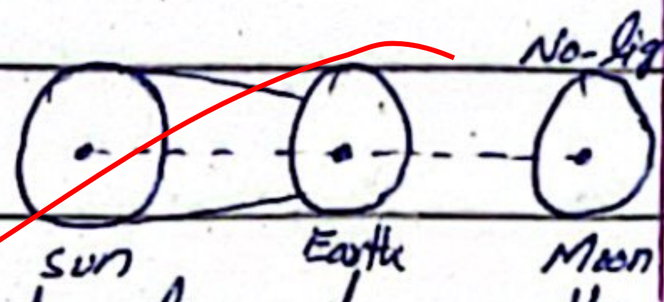
The obscurity of one astronomical object by another astronomical object is known as eclipse. It is divided in two types

1. Lunar Eclipse



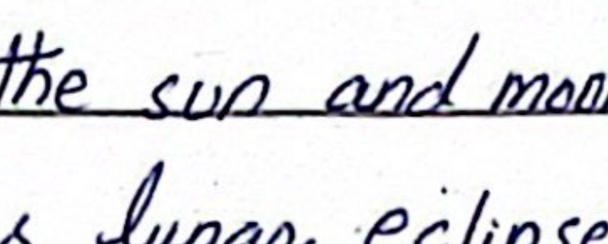
When Earth is in between the sun and moon then this eclipse is known as lunar eclipse. It is divided into two type:

(a) Total Lunar eclipse=



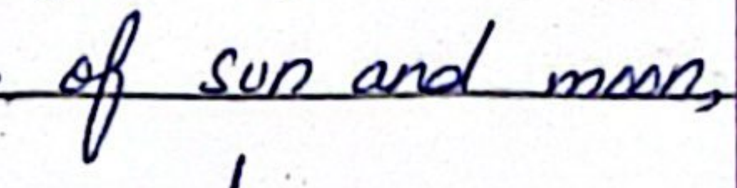
When Earth is exactly alinged on the same line joining the center of sun and moon, this is called total lunas eclipse.

(b) Partial Lunar Eclipse=



When Earth is slightly above or below the line that joining the center of sun and moon this is called partial lunes eclipse

2. Solar Eclipse:



When moon is in between the sun and earth then this eclipse is known as solar eclipse. It is divided into three types:

(a). **Total solar Eclipse:**

When moon is exactly alinged on the same line joining the center of sun and earth, such eclipse is called total solar eclipse.

(b). **Partial Solar Eclipse:**

When moon is slightly above or below the line that joining the centers of sun and earth, such eclipse is called partial solar eclipse.

(c). **Annular Solar Eclipse:**

The middle object moon is small in size then sun. When it is exactly on centre line then a sharp sun rays fall on the surface of earth because of moon small size which called belly beats. This is called annular solar eclipse.

(b)

Origin of Universe =

The scientific explanation for the origin of the universe is the Big Bang theory. According to this theory, the universe is originated from an extremely hot and dense state approximately 10 to 20 billion years ago.

Evidence =

Several Observation support this theory, including

the cosmic microwave background radiation, the abundance of light elements and large scale structure of universe.

Study its theories

Method to Calculate the Age of Universe

1. By looking for the oldest starts.
2. By measuring the rate of expansion of the universe and explation and extrapolating back to the ~~Back~~ Big Bang known as Hubble Constant.

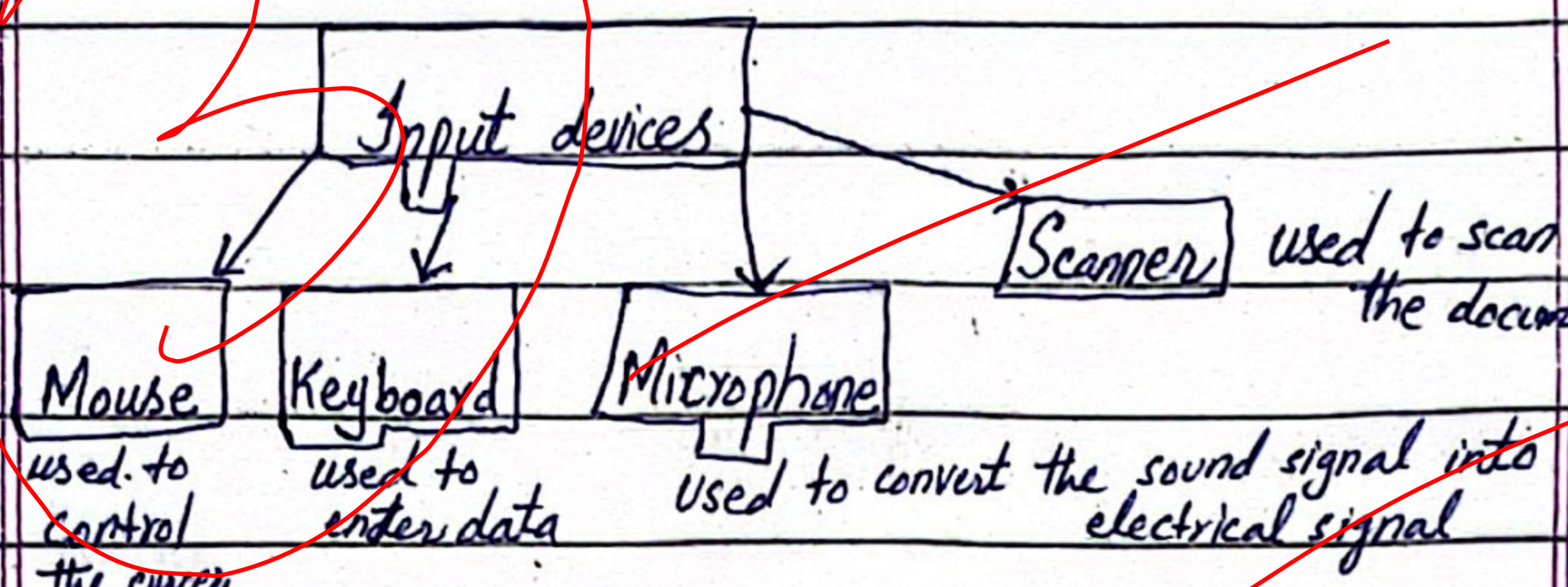
Q5

(a) Input Devices:

The devices that are used for giving instruction to the computer are called input devices.

Output Devices:

The devices which are used to obtaining the output from the computer are called output devices.



(b)

Optics

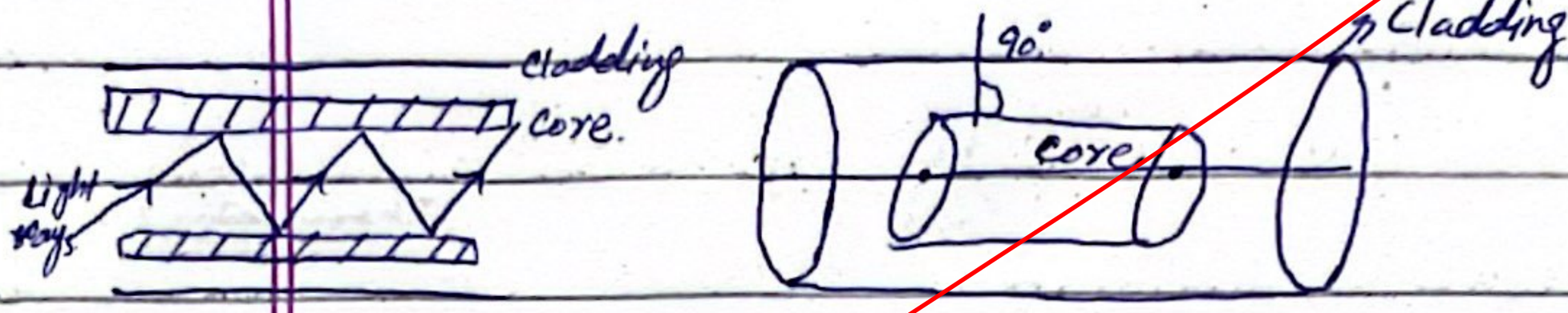
The study of properties and propagation of light is known as optics.

Optical fiber

The strand of optical glass which used to transmit light signal from one point to another point is called optical fiber. It's diameter is equal to diameter of human hair.

Working:-

Optical fiber works on total internal reflection principle. It is divided into two part. The center part is known as core which has high density and other part is known as cladding that covers the core to stops the signal from spreading. Light rays contain information in it and it is decoded by other devices.



A light waves travelling inside a glass having critical angle in which angle of incidence at which angle of refraction becomes equal to 90° is responsible to moves rays in forward directions. The phenomen occurs at core-cladding boundary.

Types:- These are:

① Single mode Index fiber ⇒ Core diameter 5 μm

② Multi mode Index fiber ⇒ Core diameter 10μm-50μm.

③ Multi mode graded index fiber ⇒ Core diameter 1mm.

(c)

Solid Waste Management

It is the supervised handling of waste from collection to disposal of solid and all types of waste.

Different Methods

1. Open dumping:

It is the open decomposition of waste. It is detrimental technique because it become causes of many disease. Moreover, it is also responsible to environmental pollution. It is preferable where no school, hospital or other society institutions held. Also, it must be away from water bodies like canals.

2. Composting:

It is preferable for organic waste. Organic waste is composting and the product obtained is known as compostive which is useful in agriculture.

3. Incineration:

It is a process in which waste in incinerated in incinerator. It is useful for small institutional waste like hospital waste, school waste. Temperature requried for this is high and between 100 to 200 °C. It is used for organic waste.

4. Land filling:

This technique is used in past. In this technique waste is buried in land and proper measures are taken to avoid the contamination of underground waters.

(d)

GPS

GPS stands for Global positioning system. It is an American based satellite system that is used in nevigation purpose. In this system, 24 satellite which are revolving around the earth. It is used for 2D (Longitude plus Lattitude) and 3D (Longitude + Lattitude and Altitute). Only three geo-stationary satellites are useful for 3D location. It covers 120° of earth part. These satellite revolve around the earth twice a day and send signal to the earth. Time difference between sending of signal from satellite and receiving on earth tells about the distance. It is under US Airforce and US armies control.

GIS =

GIS stands for Geographic Information system. This system is not just include software and hardware but all users are involved in it. It is a tool that creates, manages, gathers, analyses and maps all types of data. With the help of it, user can visualize different trends and monitor changes within an area. It is used for natural resource management by analysing, managing and monitoring natural hazards. It is just like remote

Write complete logic and steps

Q8

(a)

BROTHER is written as QDGISNQA

SISTER is written as QDSRHR

(b)

Total cards = 12

Sample = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

(i) $P(8) = \frac{P(\text{Probability of drawing 8})}{\text{Total}}$

$= 1/12$

Total even numbers = 2, 4, 6, 8, 10, 12

(ii) $P(\text{even numbers}) = \frac{P(\text{even number})}{\text{Total}}$

$= 6/12 = 1/2$

Perfect square = 4, 9

(iii) $P(\text{Perfect square}) = \frac{P(\text{Perfect square})}{\text{Total}}$

$= 2/12 = 1/6$

(iv) $P(\text{negative number}) = \frac{P(\text{negative number})}{\text{Total}} = 0/12$

(v) $P(13 > \text{number}) = \frac{P(\text{number less than } 13)}{\text{Total}} = \frac{12}{12} = 1$

(d)

Data = 15, 15, 16, 16, 16, 17, 17, 18, 19

Mean = $\frac{15+15+16+16+16+17+17+18+19}{9} = 16.5$

Medium = 16

Mode = 16

Range = 19 - 15 = 4

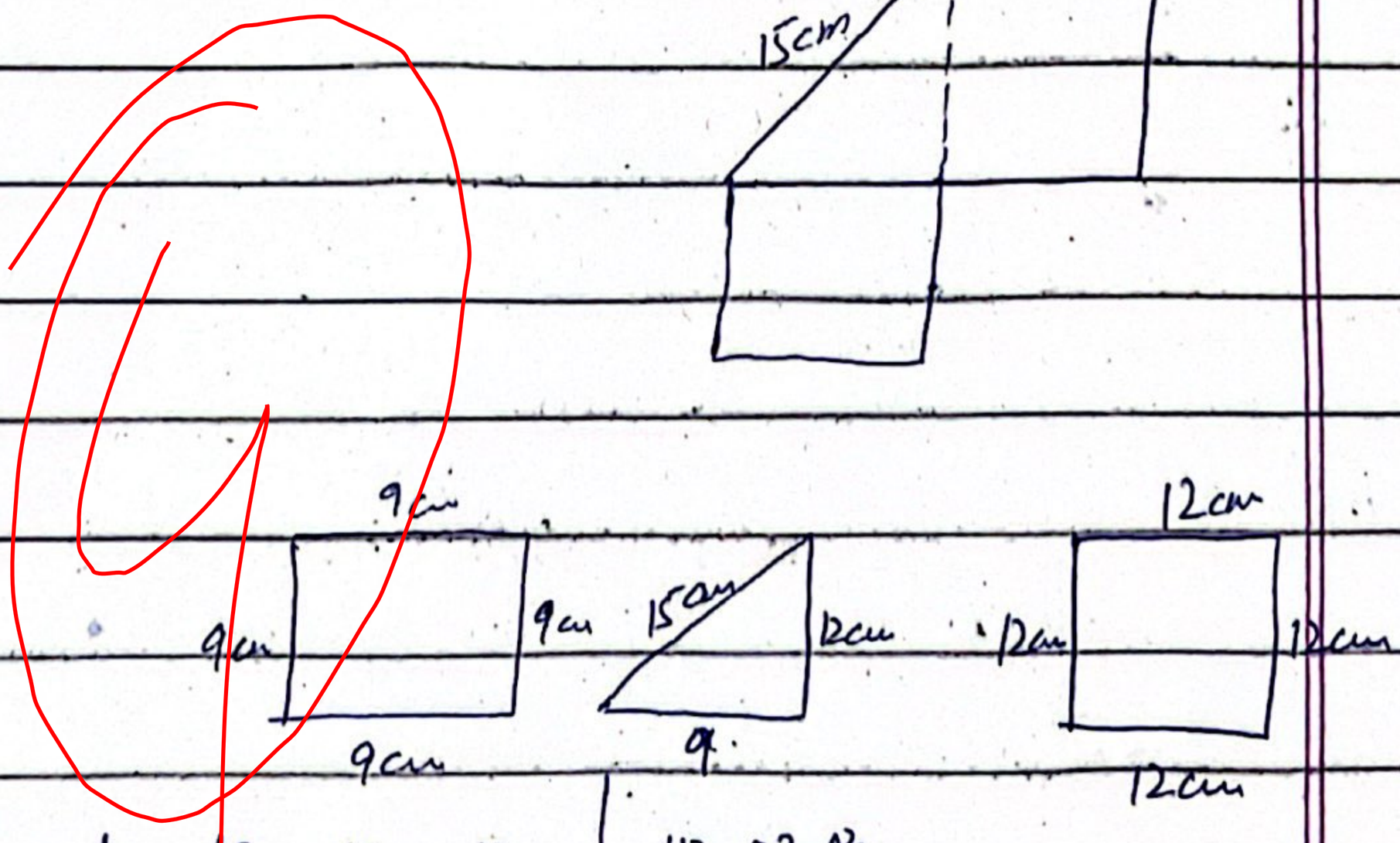
Mean= Mean is the average value of given data. It is obtained by dividing the sums of given data to total numbes.

Median= First given data is arranged in asending orders. Then the middle value is known as median.

Mode= The Most repeated value in given data is known as mode.

Range= The difference between heighest value and smallest value in given data is known as range.

(c)



Perimeter = 12cm + 12cm + 12cm
12cm + 15cm + 12cm
+ 9cm + 9cm + 9cm
+ 9cm + 9cm

Perimeter = 120 cm.

$H^2 = B^2 + P^2$

$(15)^2 = x^2 + (12)^2$

$225 = x^2 + 144$

$x^2 = 225 - 144$

$x^2 = 81$

$x = 9$.

Area = $12 \times 12 = 144 cm^2$

Area = $9 \times 9 = 81 cm^2$ Total Area = $279 cm^2$

Area = $\frac{1}{2}(12 \times 9) = 54 cm^2$

Q7

(d)

Radius = 10cm

Height = 36cm

Volume = ?

Volume = $\pi r^2 h$.

Volume = $(3.14)(10cm)^2(36cm)$

Volume = $11309 cm^3$ Ans.

(b)

Persons	Sugar	Days
30	40kg	10
80	320kg	x

The Relation between days and person are Inverse

The Relation between Sugar and days are direct.

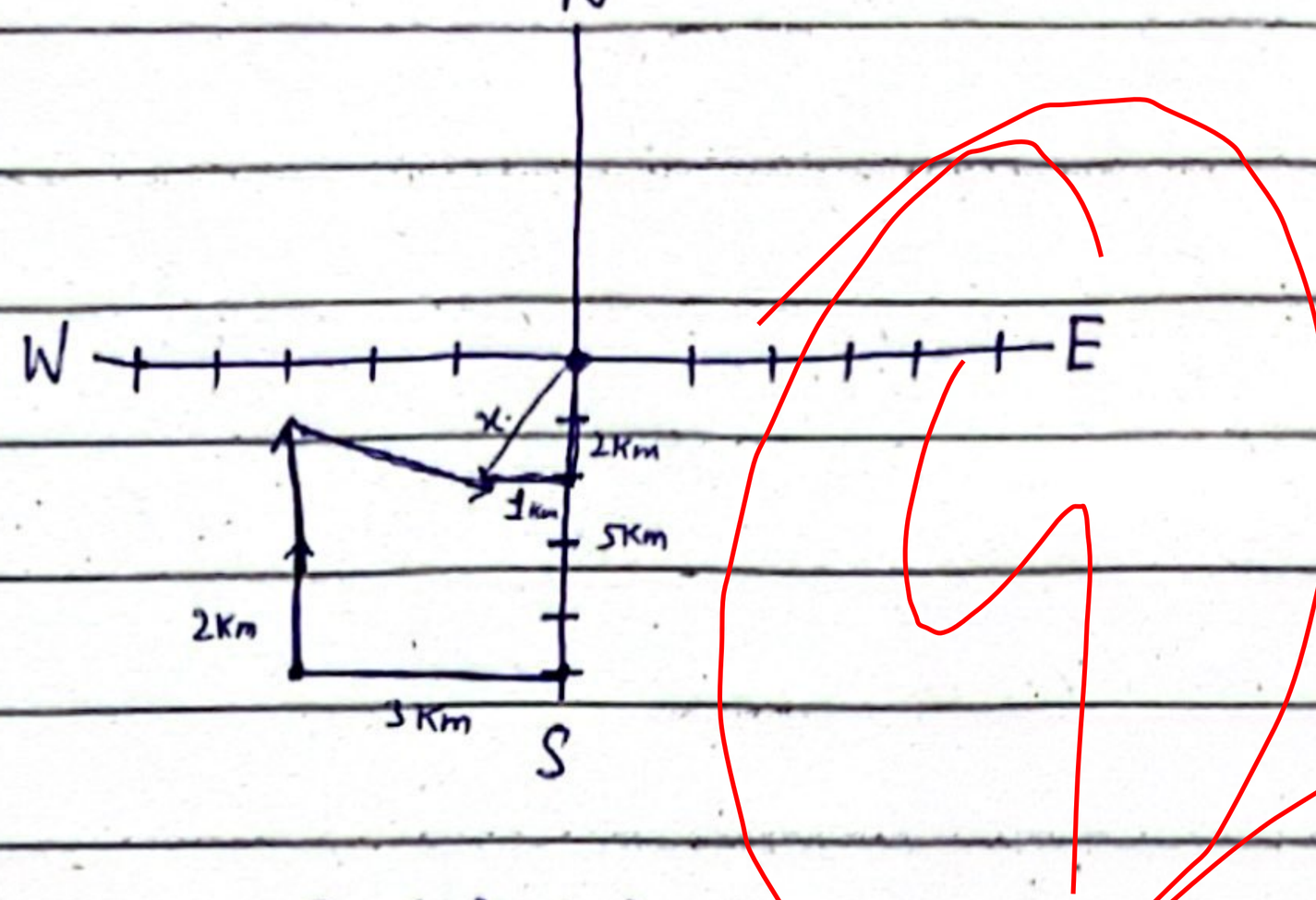
$$\frac{x}{10} = \frac{\cancel{320}^{1}}{40} \times \frac{30}{\cancel{80}_{1}}$$

$$\frac{x}{10} = 3$$

$$x = 3 \times 10$$

$$\boxed{x = 30 \text{ Days}}$$

(c)



$x^2 = (1)^2 + (2)^2$

$x^2 = 1 + 4 \Rightarrow x = \sqrt{5}$ Km $\boxed{x = 2.23 \text{ Km}}$

It is 2.23Km away from its initial point.

(a)

Total number of seats = 400

Numbes of occupied = 325

Precent of capacity $= \frac{325}{400} \times 100\%$

$\boxed{= 81.25\%}$

So, Precent of capacitity is 81.25%.