First Mock

Date _____

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- Batch# 60
- Lms Id# 32443
-
- Paper# General Science & Ability

2024-2025

Date:

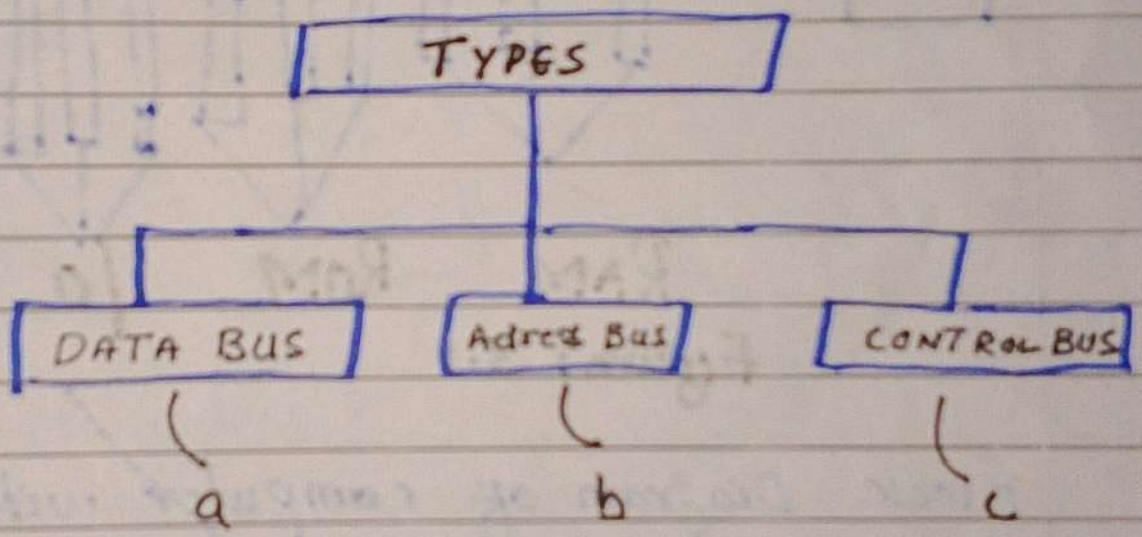
Q. No. 3

Part - a

Ans :

What are Buses?

Buses : are the important components of a computer, in which data flows from one part of computer to other one. The pathways though which internal components of a computer are connected together are known as buses.



a. Data Bus :

Data Bus is a bi-directional bus that transfer the information according to the requirement of users.

b. Address Bus

Address Bus is a uni-directional Bus. that identifies the place where data is kept.

c. ~~Address Bus~~

c. Control Bus :

Control Bus carries out different commands from one part of the computer to other. It also helps the processor to control the computer's activities

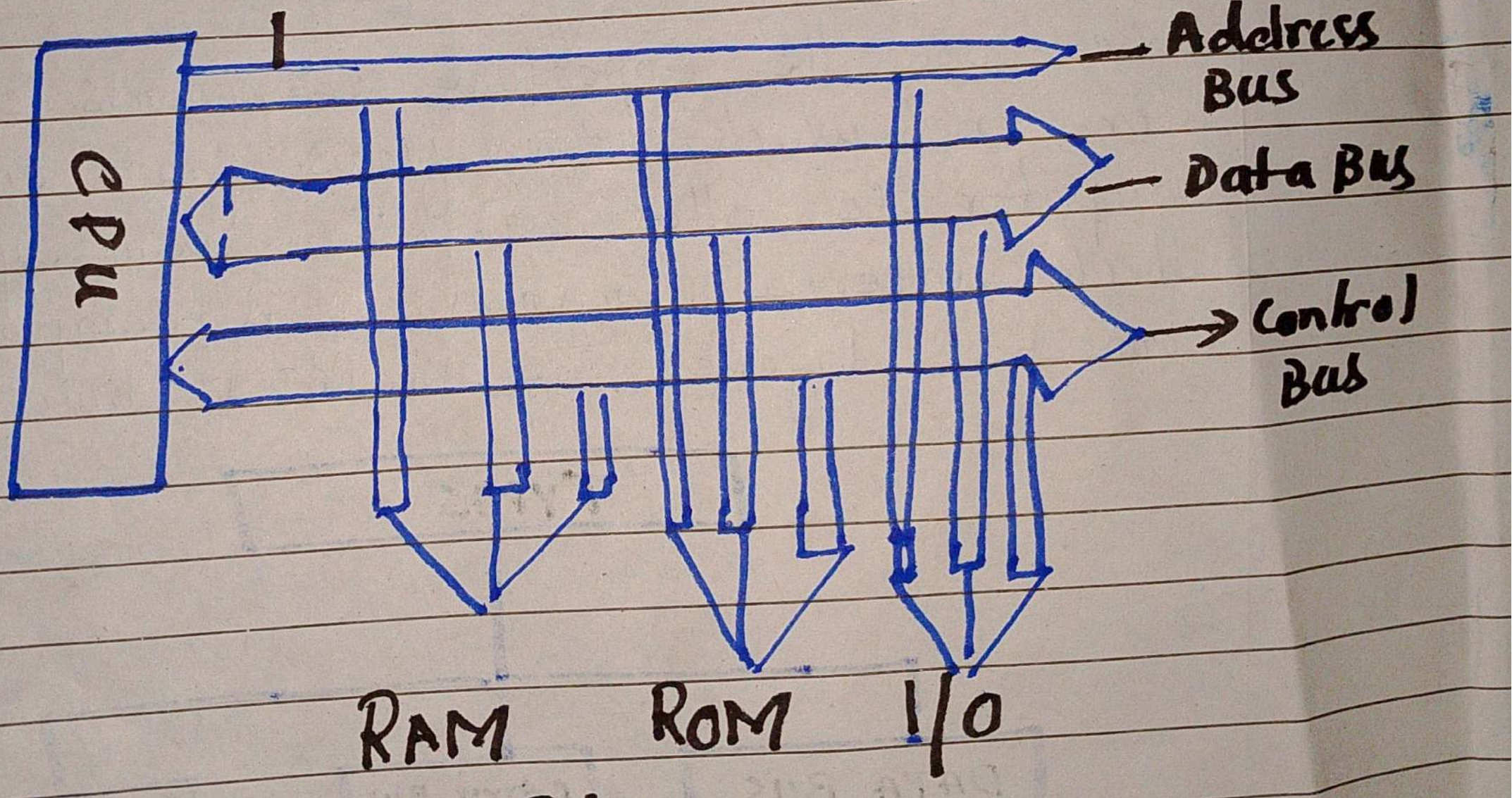


Figure : 3.1

Diagram of computer with its Input

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Block Diagram of computer

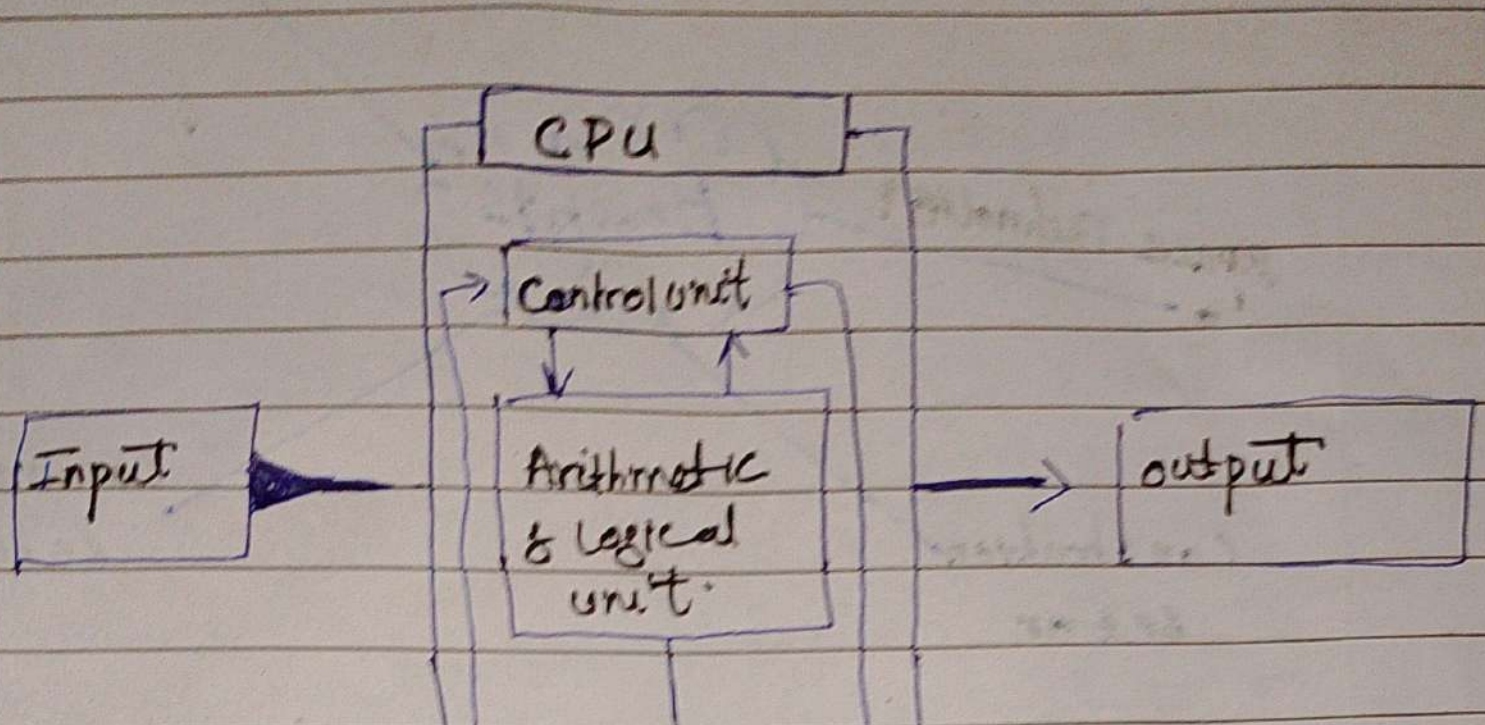

Fig: 3.2

Part – b

What is optics?

Optics is the branch of science on which scientists study the behaviour of light. on the basis of its behaviour like wavelength, visibility and other, light is used to get different benefit out of it such as data communication, and others. However, light has different wavelength.

Benefits of optics on Different sectors

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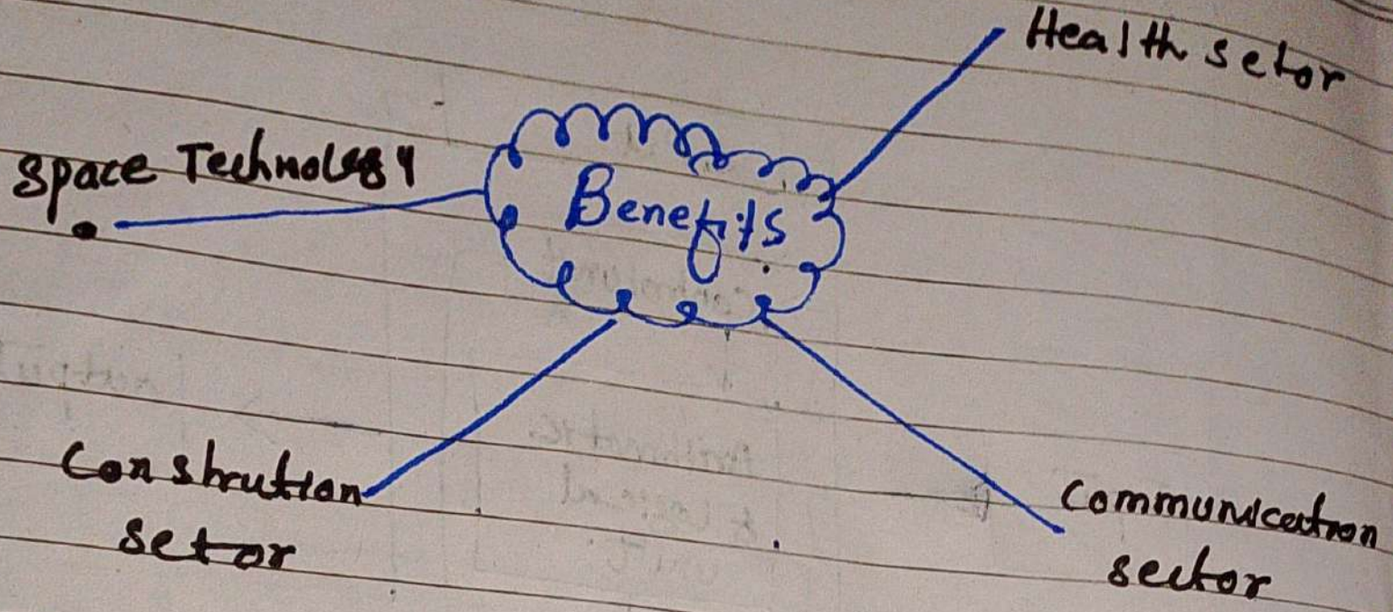
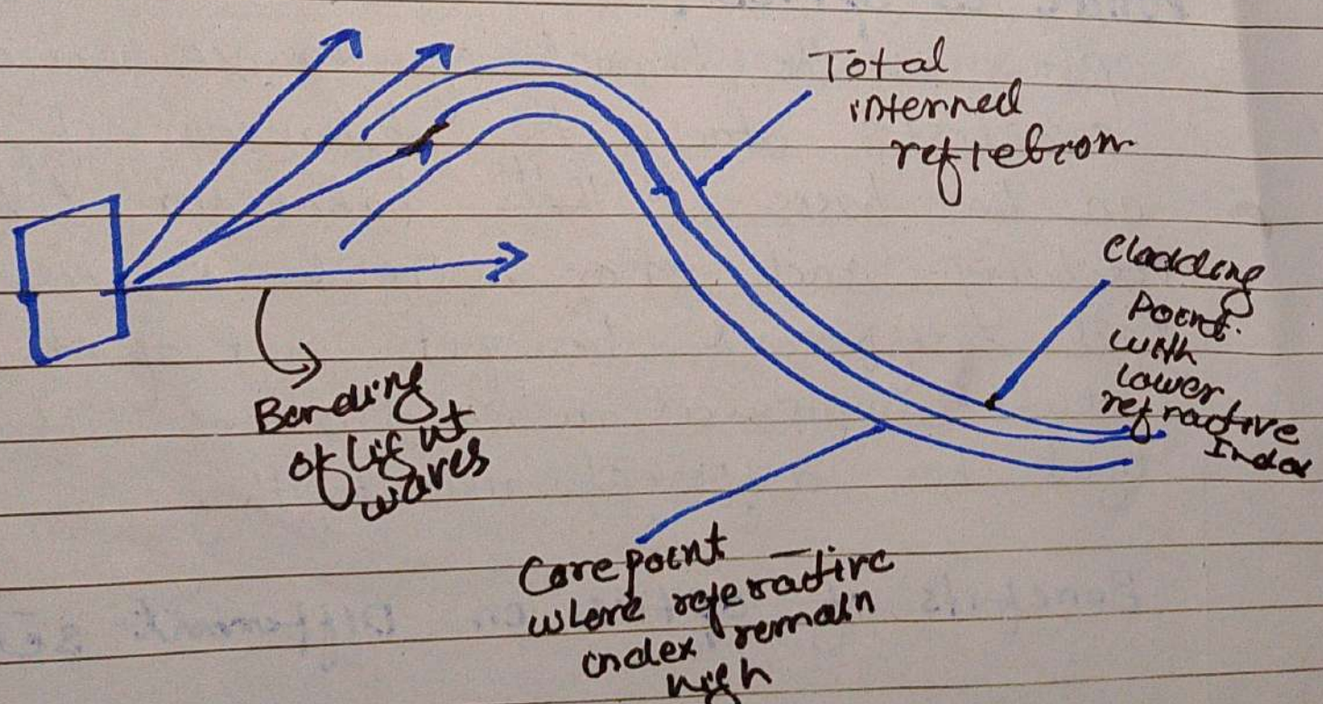


Working of an optical fiber

optical fiber is a new technology that is consist upon glass or plastic and is used for the transmission of data from one place to another. These optical fibers work on the basic principle of <u>total internal reflection</u> where light is headed towards thes threads made up of glass.



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Part – C

i. Hypocenter:

This term commonly used on the field of geology, specifically studying about earthquake. The point where earthquake generates is known as hypo-center or focus point.

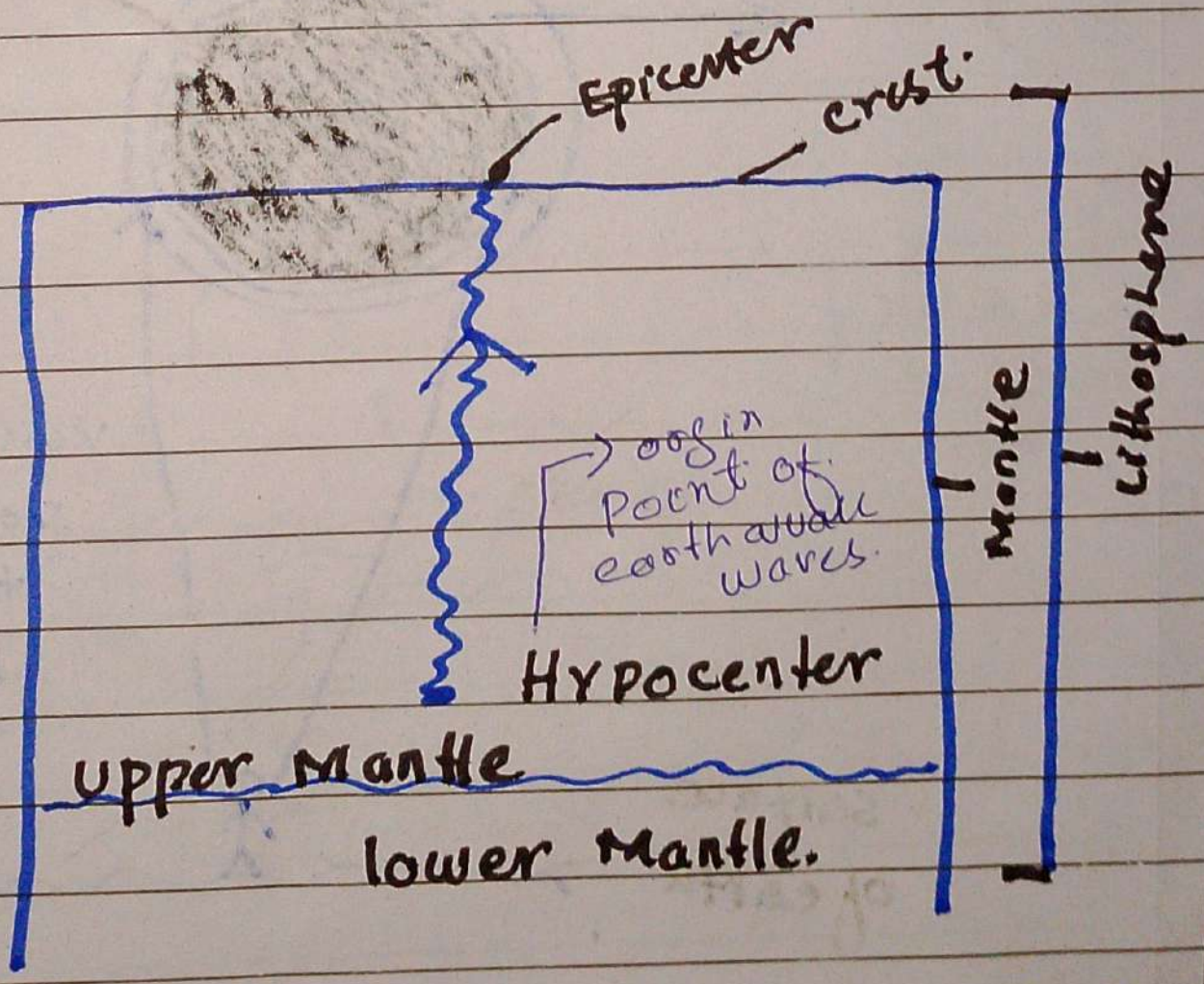
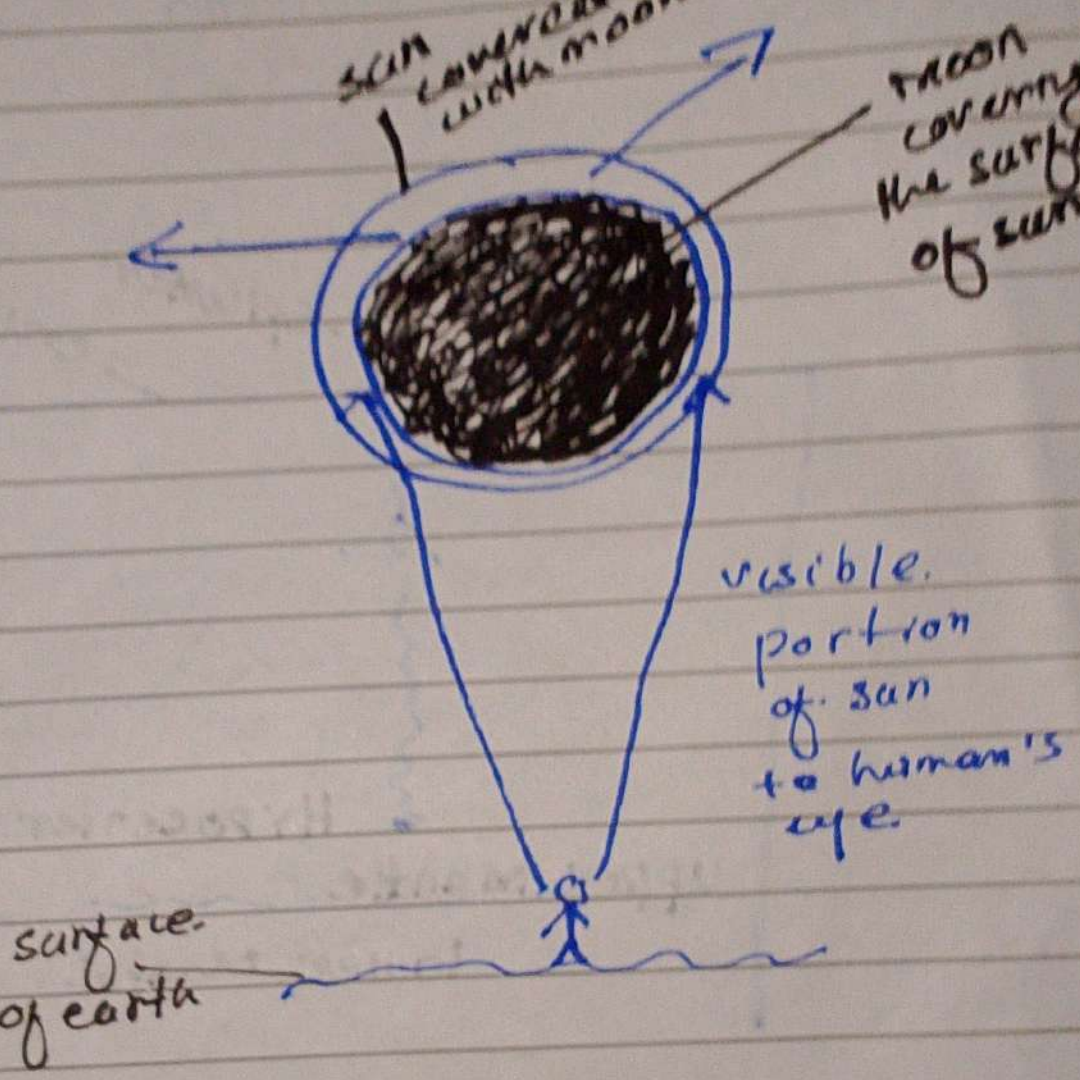


Figure: Diagram showing exact location of hypo center.

ii. Annular eclipse

Annular eclipse occurs when Sun is covered by the moon to an extent wherein Sun appears like a ring. And this is also known as ring effect. This natural phnomena can be observed only in few region.



Figure; showing lunar Annular eclipse.

iii. Epicenter

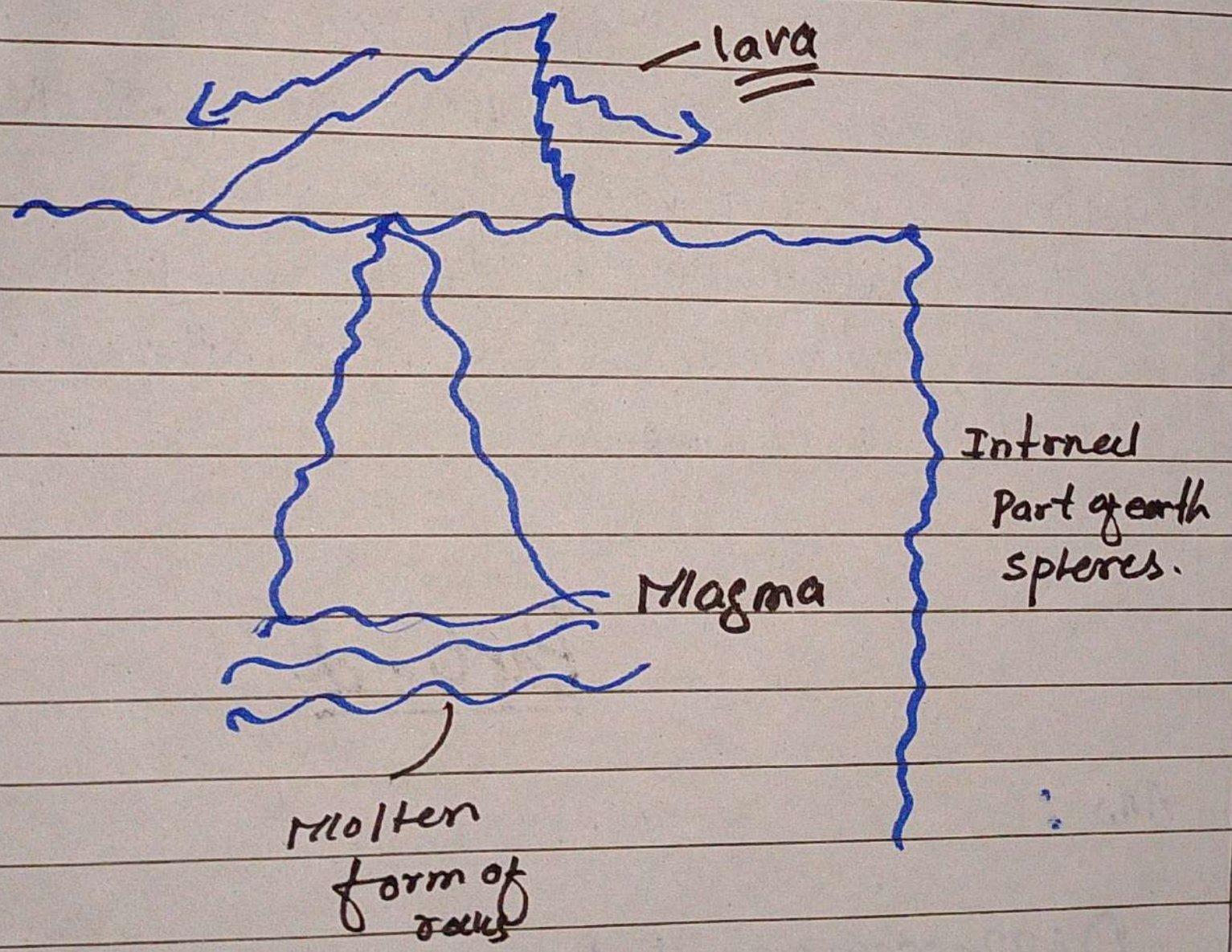
Present all the upper surface surface (crust) of the earth, epicenter lies directly above the focus point. This is the point where seesmic ~~points~~ waves are converted

into surface waves.

Date:

iv. Magma

Magma is the semi molten state of materials present in lithosphere. When this semi molten 70-80 km of materials reaches at the surface of earth, it becomes lava. Magma and lava are the name of ~~same~~ same material but studied differently due their location.



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Dark Matter:

V. Dark Matter

Dark matter is a unvisible force that is found on galaxies. This force allows the galaxies to hold stars around them due to their gravitational pull. Because of the dark matter, galaxies absorb other small galaxies, mainly depend upon their size. According to NASA, About 90pc of universe is made of Dark matter. However, this is just an assumption made by the scientist, further research is still continued.

Part. d

Ans:

Difference between Big Bang Theory and Big crunch Theory

Big Bang	Big Crunch
• Explains origen of the universe	• explain how this world is going to end
• Universe is a result of Big explosion.	• Explains due to constant expansion universe is moving towards it end

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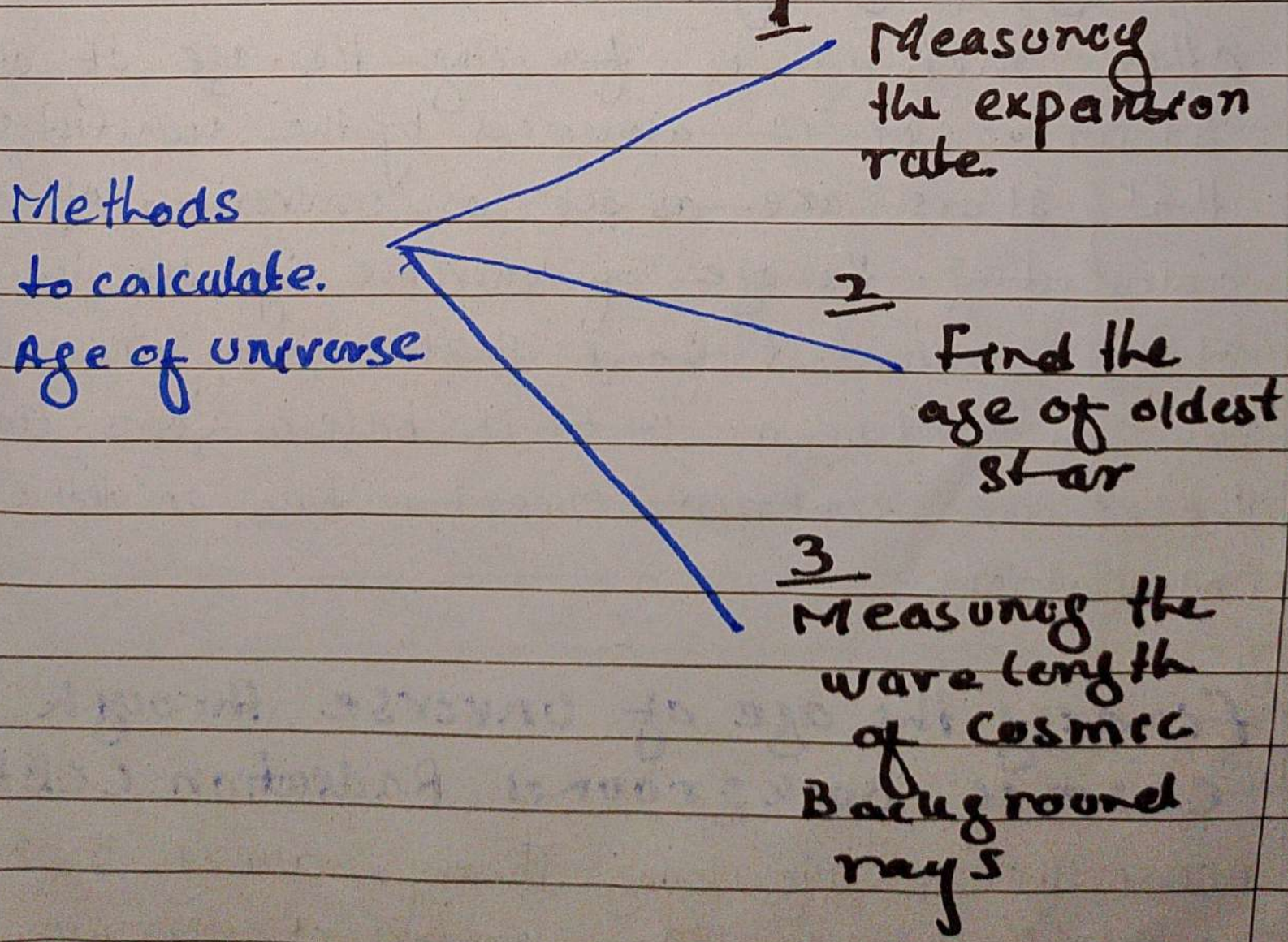
- Explains the structure of galaxies and stars
- Explains their due to constant conversion of hydrogen into helium, stars will be cold one day.

Measurement of universe's Age

There are three different methods on the bases of which age of universe can be calculated.



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Measuring the expansion rate of universe

Age of universe can be calculated through measuring its expansion rate. It was observed with the help of a telescope unown as Hubble Telescope that ear objects of solar system are moving with constant speed. Later on, it was goven with the name of Hubble constant Ho. After measuring the age of with the help of hubble constant, scientists found that age of universe is in between 7 to 14 billion year.

Finding the age of oldest star

Other method is finding the age of oldest star. It is assumed by the scientists that stars are as old as universe. After calculating the age of universe by the age of stars, scientist fond that age of universe lies in between 17 to 18 billion years. However, these are certain uncertanities in these calculations.

Finding the age of unverse through Cosmic Background Radiation (CBR)

According to Big Bang Theory, during Big Bang expolsion a certain amount of energy was generated. whose radiations are still travelling around space. After measuring the wave length of these radiation, scientist found that age of universe is about 13.4 billion. In addition, all above method showed their joined concern on this calculation.

Q.NO.2

Part-a

Ans:

Difference Between Climate and Environment:

Climate	Environment
• As compare to the environment, climate is a smaller term which is mainly used to disscuss weather change	• Whereas environment is a broader term which is used to disscuss overall surroundings including atmosphere and surface of the earth
• Change in temperature, weather variables such as rainfall, snowfall, fog are the components of climate.	• On the other hand, all spheres of earth including atmosphere and internal sphere are the major components of environment
•	

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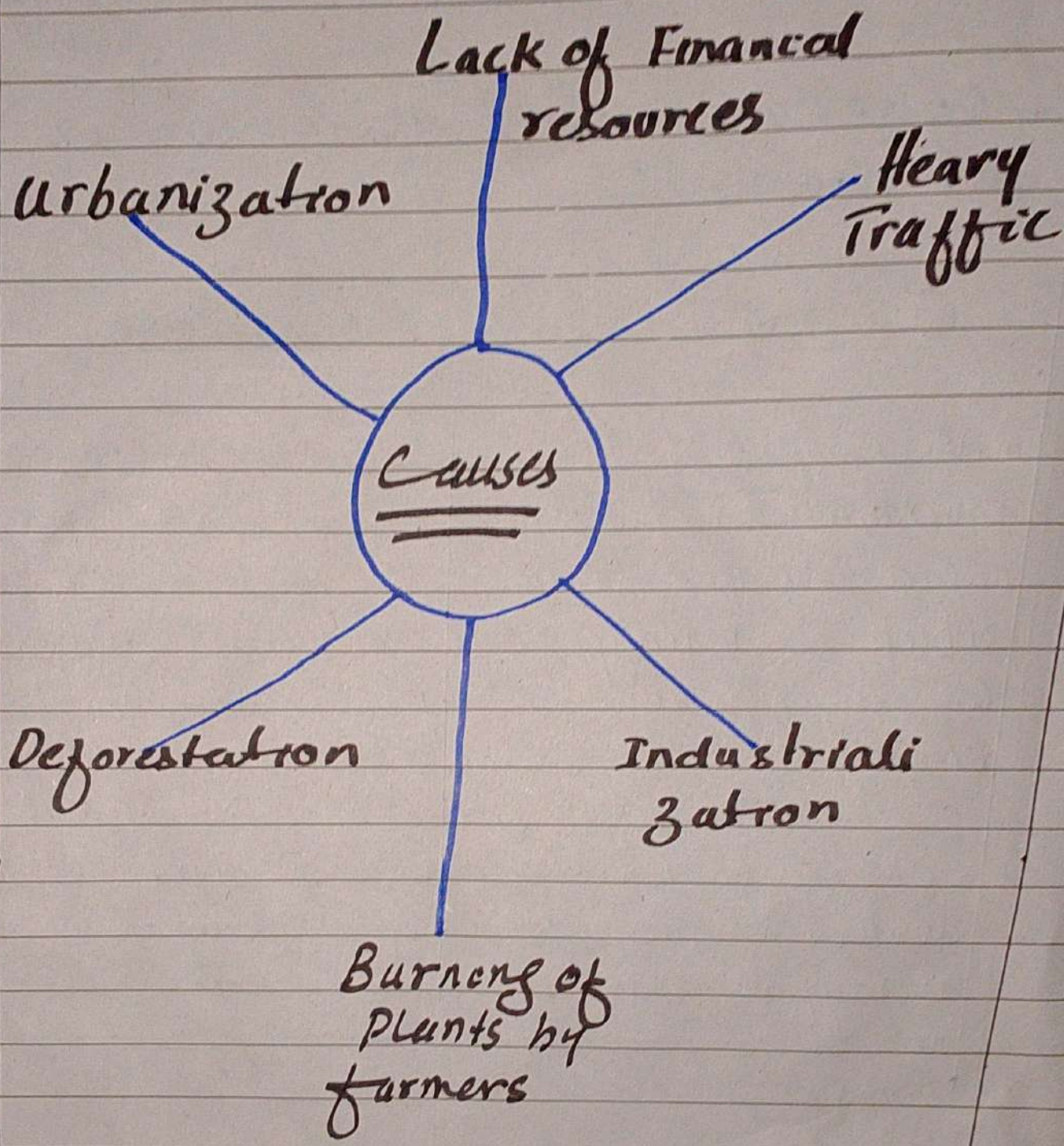
Causes of Pollution in Pakistan (air)

There are several causes of air pollution in Pakistan. Some of them are given in below block diagram



Part-b

Ans:-

What are vitamins?

vitamins are chemical compoonds which

Date

play compartant role to regulate enteroal system of living beings. some vitamens are generated within the body of living beings whereas some are needed to be consumed. on the basics of their consumption and creation, vitamin can be classified in two types: water soluble vitamin and fat soluble vitamin. water soluble vitamin are those vitamin which stay on body for short period of time and get drained through urinary system and sweating. whereas fat soluble vitamin are those vitamin which remain in the body of living beings for longer period of time and these vitamins are more compartant on the basics of their longer stay. Such vitamin are A, D, E and K. Main sources of vitamin ar A are vegetable fruits, eggs etc. they are very compartant for good eyevision. However, their deficiency can cause short sight problems. Secondly all vitmans are important to obtain a healthy lifestyle.

Part - C

Ans :-

A comparsion between the Goals of cop 27 and cop 28

Date

COP27

- Enhancing NDCs (Nationally Determined Contribution.

Cop27 aimed to strengthen the goal of NDCs which were conducted under paris agreement on terms of financing and adaption of climate change mitigation polices.

- Accelerating climate Actions
- Addressing loss and damage fonds
- Scaling up climate finance
- Strengthen the international Cooperation

CoP28

- Quick shift towards green energy
- Private cooperation
- Financing the countries to adpot climate change policies
- 1.7 billion finance allocation for Amazon forest
- Continue the policies of cop 27.

Part-d

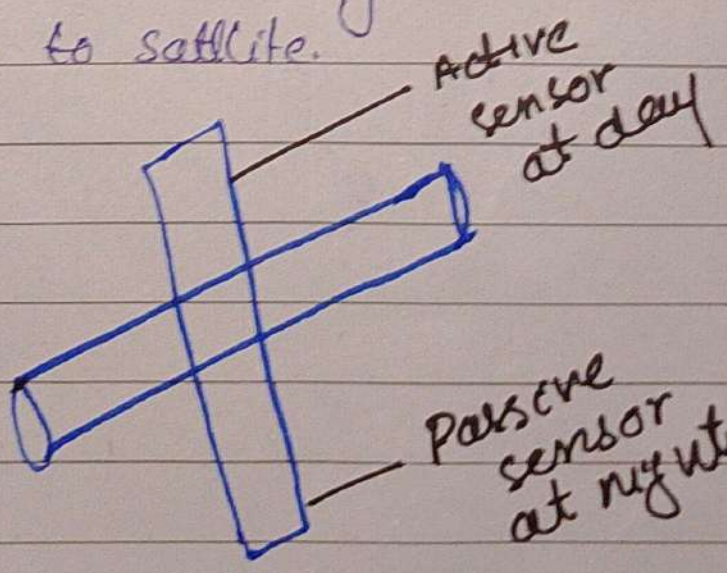
Ans :-

What is a sensor?

Sensor is the self observation of machins with the help of their artificial intelligence. Sensor is a common device which is used into serval other devices such as mobiles phones, washing machins, weather satellites and others. In satellites sensor are used to activate their active and passive function.

Active and Passive sensors ~~in satellites~~ and their use in G.I.S

Active sensor enables satellites to directly absorb the sun ray as a source of energy. whereas, passive sensor enables satellite to rely on its own batteries. So, when there is a night, satellites use their passive sensor and at day, active sensor sends the data to satellite.



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SECTION - II

Q. NO. 7

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Part — C

Ans:-

Given Data:

Weight of one Tablet = w_1 = 30 mg

weight of x Tablet = w_2 = 240 mg

one

$Q_1 \longrightarrow 1$

$w_1 \longrightarrow$ 30 mg

$Q_2 \longrightarrow$ unknown

$w_2 \longrightarrow$ 240 mg

Required:

Q_2 =

Solution

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using formeela.

~~Q1/W1~~

$$\frac{Q_1}{W_1} = \frac{Q_2}{W_2}$$

~ Putting values

$$\frac{1}{30} = \frac{Q_2}{240}$$

$$Q_2 = \frac{240}{30}$$

$$\boxed{Q_2 = 8}$$

So, 8 tablets will be needed to provide Ms. smith 240 mg of medication.

Part d.

Ans :-

Given Data:

A

Total Average = 50.

Total Numbers = 20.

Discarded Numbers = 37 and 43

Required:

Remaining Average = ?

Solution

~ Avrage = $\frac{\text{sum of all no}}{\text{total nos}}$

~ Let the required no b = X.

~ Putting values in above formula

~ $\frac{50}{} = \frac{X}{20}$

~ $1000 = X.$ or $X = 1000.$

↳

Removal of 37 and 43

R.U

50
×20
00
100X
1000

Date

Date:

Remaining Numbers

N = 48

total sum = 920

New average = $\frac{920}{48}$

New number after taking Average ↳ 19.166.

1000
80
920 | 37
+43
80

920

19.166 920
87.5 48
115 24
230 460
920
48
24
12
6
3
1

1 2
48
24
12
6
3
1

Part b

Given Data :

Chocolates : Icecream cones = 5 : 8

No of chocolates = 30

Date:

Required

No of cones.

Solution.

Total Number = X.

=

Total ratio = 5+8 = 13

$$\therefore X = \frac{30 \times 13}{5}$$

$$X = 78$$

∴ To find No of cones = 78 - X - No of chocolates

∴ " = 78 - 30

∴ " = 48

So, Cons will be = 48

Part - a

Given Data:

First (wrong) number = 3/5

Second (correct) number = 5/3

Required

To Find Percentage of error

Solution

~ Let the unknown number be = x

~ Multiply x with both number

= 3/5 x x and 5/3 x x

= 3/5 x and 5/3 x.

~ Find the difference.

= 5/3 x - 3/5 x.

$= \frac{3 \times 8 / x}{3 /\!/ /}$

$= \frac{5 \times 5}{5 \times 3} x - \frac{3 \times 3}{3 \times 5} x$

$= \frac{25}{15} x - \frac{9}{15} x$

$$= \frac{25x}{15} - \frac{9x}{15}$$

$$= \frac{25x - 9x}{15}$$

$$= \frac{16x}{15}$$

Formula.

$$\text{Percentage error} = \frac{\text{Difference}}{\text{correct result}} \times 100$$

$$\% = \frac{16x}{15} \times 100$$

$$\frac{5}{3}x$$

$$\% = \left(\frac{16x}{15} \div \frac{5}{3}\right) \times 100$$

$$\% = \left(\frac{16x}{15} \times \frac{3}{5}\right) \times 100$$

$$\% = \frac{16x}{25} \times 100$$

$$= 16 \times 4$$

$$\% = 64\%$$

The Percentage error is 64 Percent

Date:

Q.No.6

PART — a.

Given Data

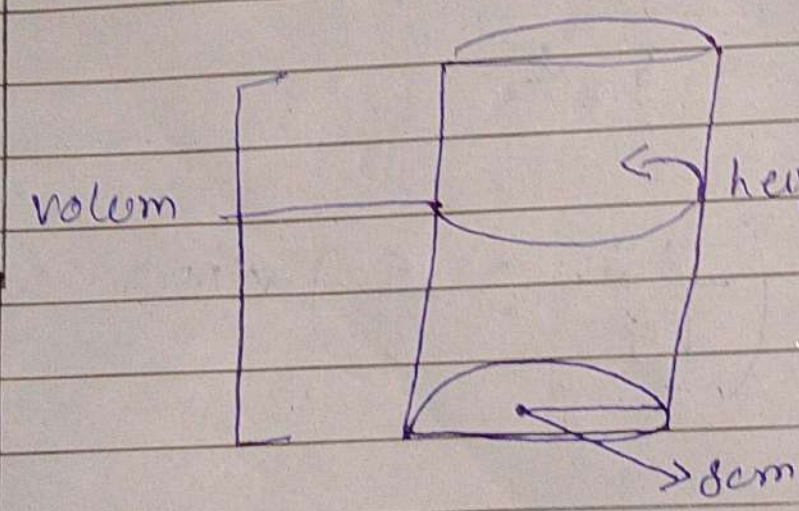
Radius = r = 8cm

Height = h = 15cm

Required

volume of radius = ?

Solution



- Let the volume be x.
- where as formula Spercel radius = $\pi r^2 h$.
- value of $\pi = 22/7 = 3.14$
- Putting value on formel

$= 3.14 (8)^2 \times 15$

$= 3.14 \times 64 \times 15$

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Volume of cylineder = 292.40cm³

Ans

64
115
320
64x
860
x3.14
3440
2580x
292.46

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Part—b

Ans :

Given Data :

$n = 8$

Angle $= 45^\circ$

Required Data :

Angle of each side of octagonal step = ?

Solution :

Formula for finding total number of angles of octagonal.

~ $(n-2)180$

~ $(8-2)180$

~ 6×180

~ 1080

~ Angle of each side.

~ $1080/8 = \boxed{145^\circ}$

So, the angle of each side is $= \boxed{145^\circ}$

Part – C

Given Data.

length = 4.6 mile
width = 2.2 mile
height = 4.6 mile.

Required.

To find surface area.

Solution

~ let surface area b = x

~ **Formula**

Area = L x W x h

So

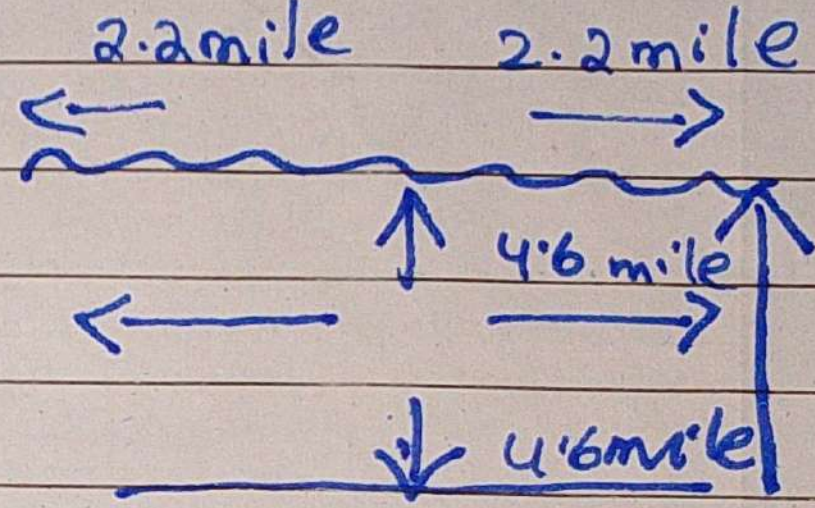
Area

x = 4.6 x 2.2 x 4.6

x = 46.55

Surface area will be

46.55



4.6
mile

4.6
x2.2
92
92
10.12

Part - d

Ans :-

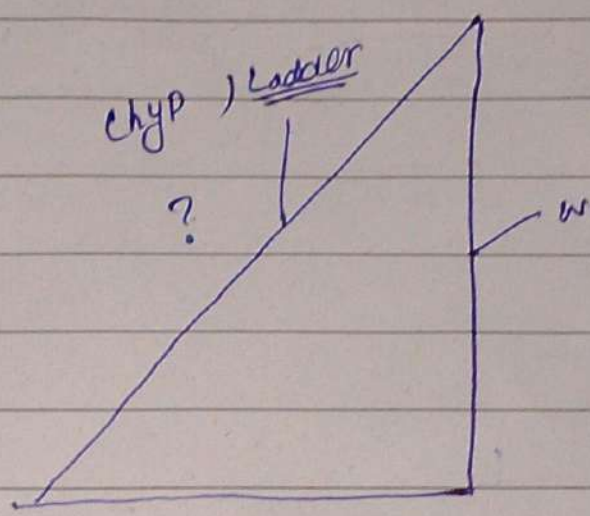
Given Data :

- Height of the wall = 10m
- Base (b) = 3m.

Required :

- Height of the Ladder.

Solution :



Let the

hyp = be = x.

Base = b

and height = h

Formula =

$(hyp)^2 = (base)^2 + (height)^2$

$x^2 = (3)^2 + (10)^2$

$x^2 = 9 + 100$

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$x^2 = 109$

Taking square on b/s

$\sqrt{x^2} = \sqrt{109}$

$x = \sqrt{109}$

$\boxed{x = 10.44}$

END