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Section II

Follow step wise maths solution
Diagrams and flowcharts are appreciated

Q-5 Part a

Given Data

Average marks of 40 students = 52.15

Number of students = 40

Marks of a student is taken 49 instead of 85

To Find

New average marks of class

Formula

$$\text{Average} = \frac{\text{Sum of all students marks}}{\text{Total number of students}}$$

let Sum of all students marks = x

$$52.15 = \frac{x}{40}$$

$$x = 52.15 \times 40$$

$$x = 2086$$

Sum of all students marks = 2086

As the student marks was taken as 49 instead of 85.

So Subtract 49 from 85.

$$= 85 - 49$$

$$= 36$$

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Now add 36 in sum of marks, we get 2122 marks

$$\text{Average} = \frac{2122}{40}$$

$$\text{Average} = 53.05$$

So, average marks of class = 53.05

d

Given Data

People like vegetable Pizza = 37

People like Chicken Pizza = 25

People like neither pizza = 3

To Find

Probability that person likes chicken pizza

You have missed this step of addition

Formula

$$\text{Probability} = \frac{\text{Number of possible outcomes of an event}}{\text{Total number of outcomes}}$$

$$\text{Probability} = \frac{25}{65}$$

$$= 5/13$$

So, probability that people likes chicken pizza is 5/13.

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b

Given Data

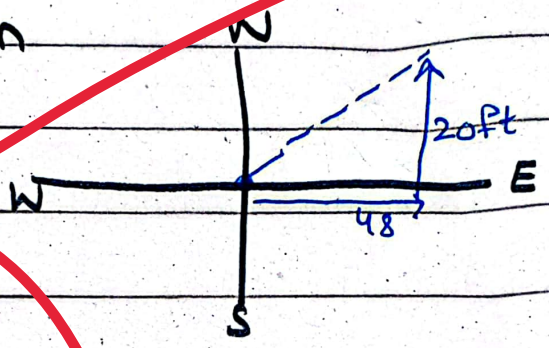
Veena ran in East = 48ft

She ran in North = 20ft

To find

If she would have run straight there from where she started, how far would she run

Diagram



Using Pythagorus formula

$(\text{Hypotenuse})^2 = (\text{Base})^2 + (\text{Altitude})^2$

$x^2 = (48)^2 + (20)^2$

$x^2 = 2304 + 400$

$x^2 = 2704$

Taking square root on both sides

$\sqrt{x^2} = \sqrt{(52)^2}$

$x = 52$ ft

So, Veena has to run 52 feet to reach from where she started.

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9

Given Data

Width of rectangular room = 60% of length

Length of classroom = 15 feet

To Find

Room dimensions = ?

Formula

Area = Length x width

So

$$\text{width} = \frac{60}{100} \times 15$$

$$\text{width} = 9 \text{ feet}$$

$$\text{Area} = 15 \times 9$$

$$\text{Area} = 135$$

7. b

Given Data

After 20years, Aman age will be 10 times his age 10years back

To Find

Present age of Aman-?

Assumption

Let Aman present age = x

Change

After 20 years Aman age = $x+20$

10 years back Aman age = $x-10$

Condition

$x+20 = 10(x-10)$

$x+20 = 10x-100$

$x+20 = 10x-100$

$x-10x = -100-20$

$-9x = -120$

$x = \frac{120}{9}$

$\boxed{x = 13.33}$

So, present age of Aman is 13.3 years

13 years 4 months

Date:

c

Given Data

Peter can mow the lawn in - 40 min

John can mow - 60 minutes

To Find

How long will it take for them to mow lawn together

So H.C.F =

Taking Highest common factor

2	40
2	20
2	10
5	5
	1

2	60
2	30
3	15
5	5
	1

H.C.F 40 = 2 × 2 × 2 × 5

60 = 2 × 2 × 3 × 5

So

H.C.F = 2 × 2 × 5 = 20

24 min

Peter and John can mow the lawn together in 20minutes.

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d

Given Data

A person multiplied by a number = $\frac{3}{5}$

Instead of = 5/3

Percentage error in calculation = ?

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

$$= \frac{9-25}{15} \quad \therefore = \frac{-16}{15} \quad = 1.063$$

Now in Percentage of error = 106.3 %

a

Q:- Distinguish I.Q and E.Q?

A:- **I.Q**

I.Q is the intelligence measuring quotient. It tells about the mental age of a person. Moreover, it highlights his mental capabilities.

I.Q is calculated by dividing the mental age of a person by his physical or real age.

$$I.Q = \frac{\text{Mental age}}{\text{Physical age}}$$

Higher I.Q value indicates that the person has strong

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mental power and intelligence level.

E.Q

E.Q shows the excellence quotient of an individual. It highlights the persons performance and gauge his excellence in performing tasks.

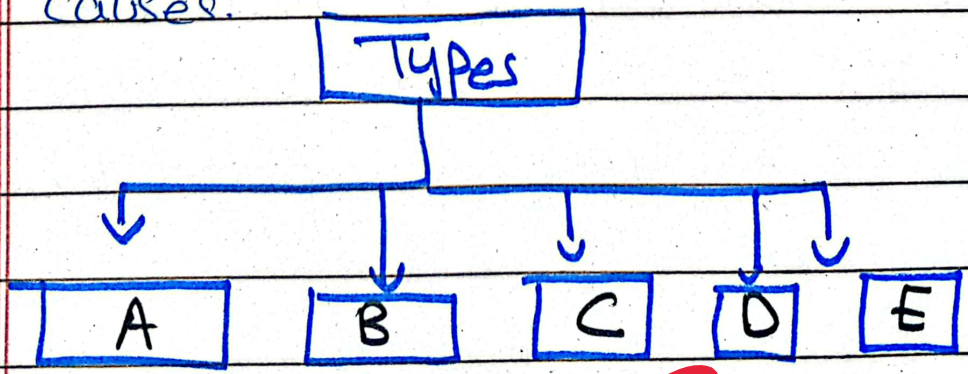
Section I

Q-4- (a)

Hepatitis

Hepatitis is the disease of liver. It results in the inflammation of liver and impedes its normal functioning.

There are different types of hepatitis on the basis of different causes.



Hepatitis A

Hepatitis A is the less severe type. It is caused by

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contaminated food and water.

Hepatitis B Causes

It is caused by using contaminated syringes, injections, needles, contact with infected blo

Hepatitis C Causes

Hepatitis C originates from transfusion of contaminated blood, syringes sexual contact with infected person.

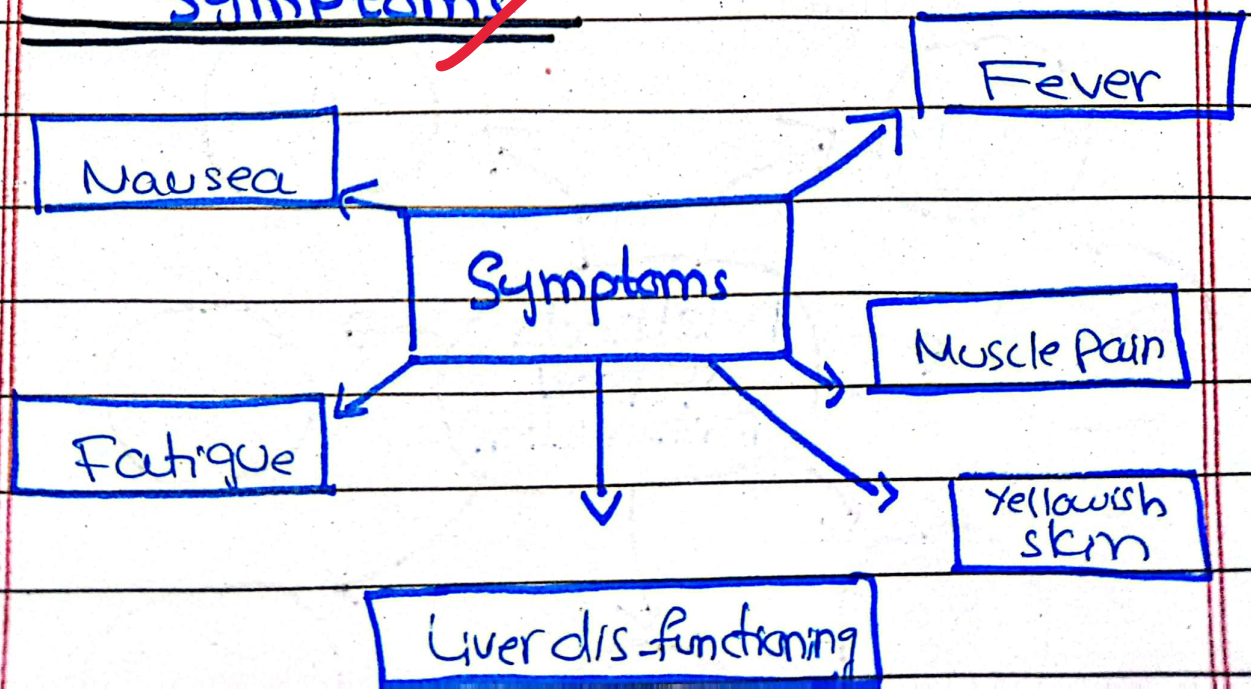
Hepatitis D causes

It develops in persons which are already affected by hepatitis B.

Hepatitis E

Hepatitis E is the least common type of hepatitis. It can also develop at any stage of life.

Symptoms



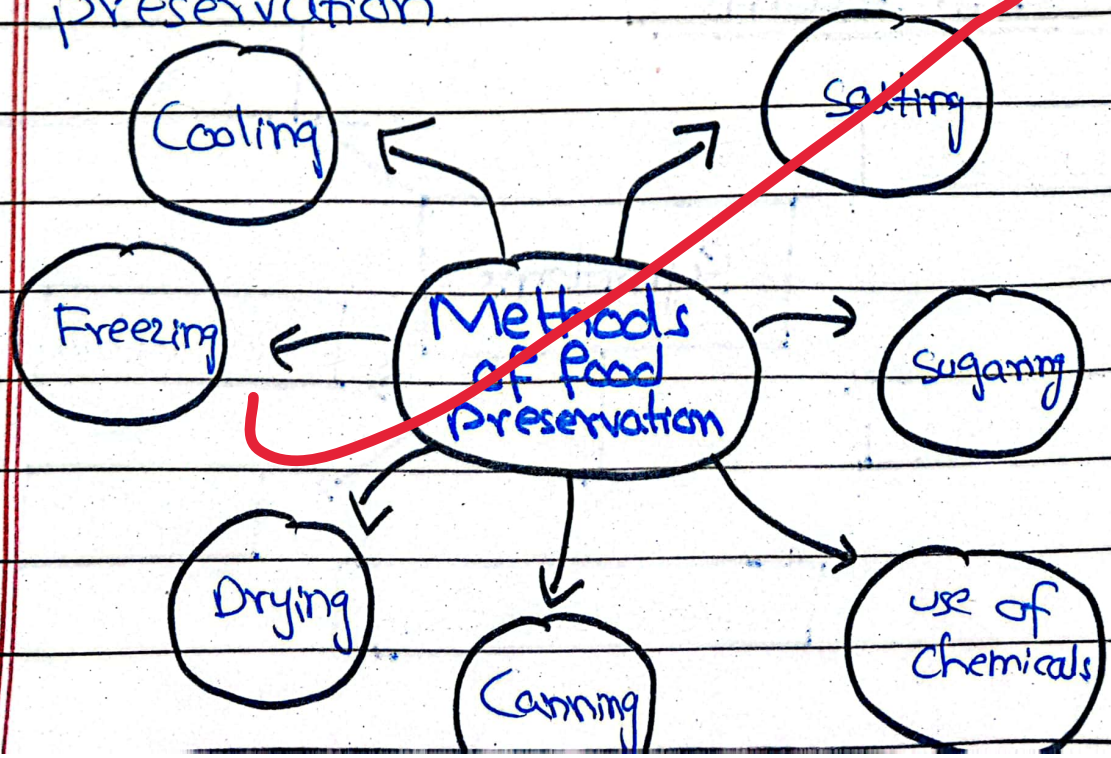
Prevention

PREVENTION

- Donot eat contaminated food
- Always drink clean water
- Avoid using already used syringes, injections
- Sterilization of equipments at hospitals
- Always conduct blood test before blood transfusion

(b) Food Preservation

The process of preserving food from spoilage and extending its shelf life is called as food preservation.



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1) Cooling

In this method, food items are cooled in order to reduce the microbial growth in food products. When microbial growth is reduced, it extends the life of food.

2) Freezing

In case of freezing method, food items are placed at 0c° in refrigerators. It completely inhibit the growth of micro-organisms and prevent food from spoilage. Meat items are usually freezed.

0c° ⟶ Food Placed

3) Drying

Drying method involves heating the food in order to remove moisture from it. Because water content in food increases the chances of food spoilage.

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4) Canning

It is mostly widely used method in Middle Eastern countries where agricultural productivity is very low. Under this process, food is placed at high temperature fire to completely remove moisture as well as inhibit microbial growth in food and then food is placed inside air tight jars.

5) Use of Chemicals

Variety of chemicals are used for preserving food. For example some chemicals are used in making spices to extend its shelf life.

6) Sugaring

In the method of sugaring, sugary syrup is used for preserving food from spoilage. This method is often employed for preserving fruits, cold drinks, etc.

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Salting

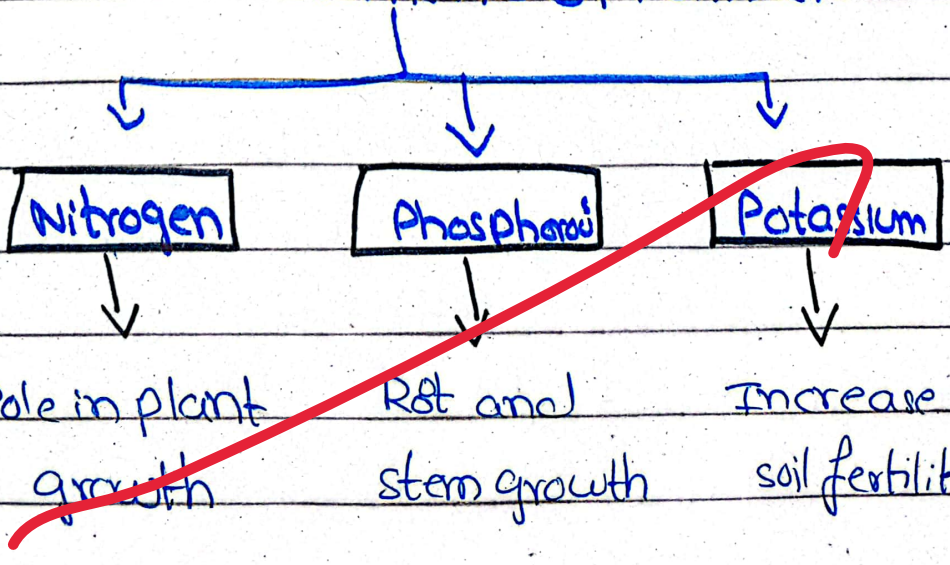
In this method, salt is used as a food preserver. Food is prevented from spoilage by salting it. Salt usage slows down and sometimes inhibit the growth of bacteria, fungi etc in food and maintains its nutritional content

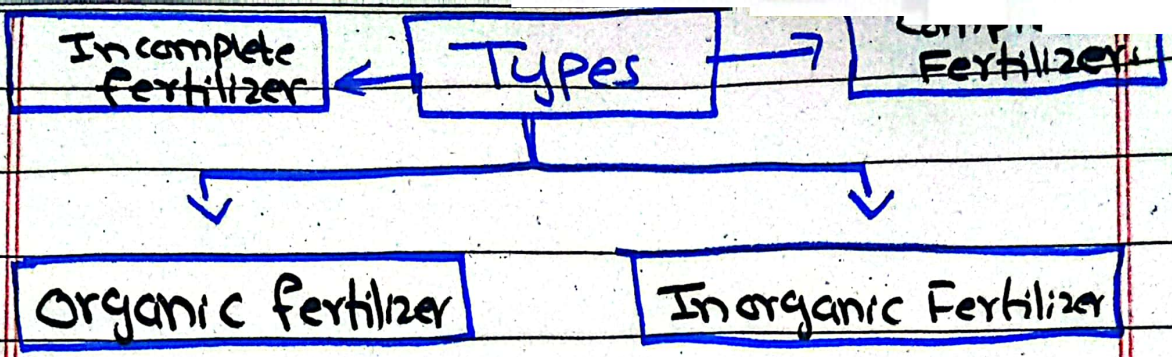
c

Fertilizers

The substances which are added in soil for increasing its fertility are called as fertilizers. Fertilizers are widely used in agricultural fields to ramp up production level.

Elements of Fertilizers





Organic Fertilizers

The fertilizers which are derived from plants and animals remnants are termed as organic fertilizers.

Example. Animals manure is used commonly as fertilizer in village areas.

Inorganic Fertilizers

These fertilizers are produced in industries that lack organic content called as inorganic fertilizers.

In Pakistan, morganic fertilizer are commonly used by farmers.

Complete Fertilizers

The fertilizers that give all three elements nitrogen,

potassium and phosphorous to soil are termed as complete fertilizers.

Example: NPK fertilizer in Pakistan

Incomplete Fertilizers

The type of fertilizer which gives only one or two elements to soil are called incomplete fertilizers.

Example: Nitrogenous fertilizer, Potash fertilizer.

Direct Fertilizer

Direct fertilizer provides nutrients to plants directly, when they are applied.

Indirect Fertilizers

These fertilizers when applied, incubate nutrients in soil which are later absorbed by plants.

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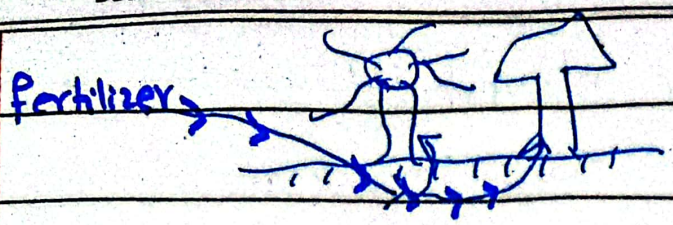

d

Anatomy of Teeth

Teeth are important parts of human body. They assist human beings in chewing food products.

Teeth are covered by the hardest layer known as enamel which protects the teeth from any physical danger.

Then after enamel, another protective layer is found. Mille plays vital role in strengthening teeths.

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Q-3

a) Sun and Its Structure

Sun is an important part of the solar system. It has a comple structure. It consist of:

1) Core
2) Radiative zone
3) Convection zone
4) Photosphere
5) Chromosphere
6) Corona

Core

The inner most part of sun is core. It has very high temperature of upto 3million degree celsius. It is the place where nuclear fusion reaction takes place and energy is released.

Radiative Zone

It lies between core and convection zone. It transmits energy released through nuclear fusion reaction to reach convection zone.

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Convection Zone

In this part, process of convection takes place. During this process, solar rays attain energy from radiative zone and reach at the edges of convection zone. After releasing energy outward, the process repeats itself.

Photosphere

It is the visible part of sun which appears yellow. Through photosphere, solar radiations are emitted and reached the Earth.

Chromosphere

It is the second outermost region of the sun. It usually appears at the time of solar eclipse. It shows reddish colour during solar eclipse.

Corona

The outermost part of sun but cannot be seen by naked eye. Solar winds that contain charged particles are originated

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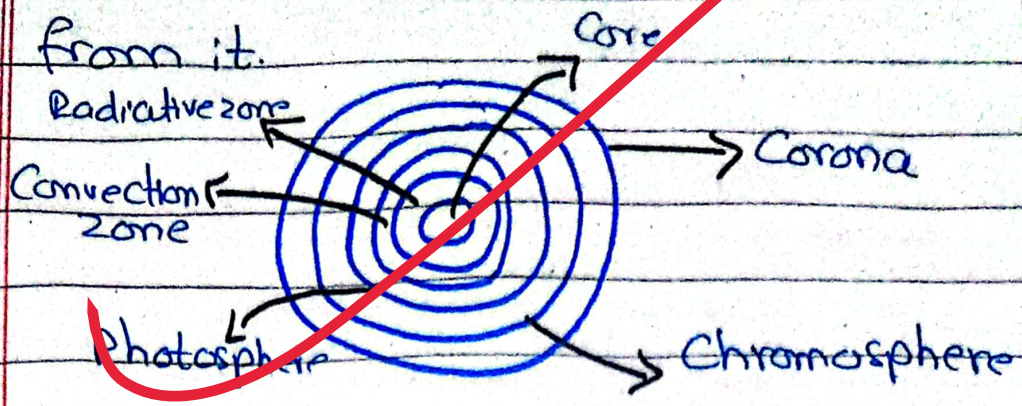
from it.



Structure of Sun

b) **Tsunami**

Tsunami is the sudden displacement of the large volume of water, usually occur in oceans or seas.

It is highly destructive in nature. There are different ways of its generation depending upon its causes.

Tsunami due to Under sea Earthquake

When under sear earthquake takes place, due to the movement of tectonic plates. It gives energy to water and cause it displace in large volume from one place to other.

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Karachi also remains under threat due to the chances of Tsunami in Arabian sea.

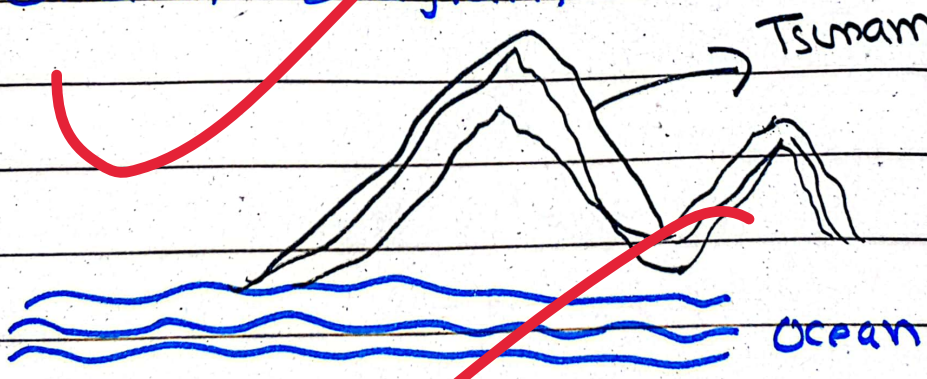
Volcanic Eruption

If under sea, molten magma emerges on sea bed, it releases enormous amount of energy which cause water to displace and results in Tsunami.

Tsunami Due to Avalanche

Avalanche is the large mass of ice that also trigger Tsunami when it falls in ocean or seas.

Tsunami Diagram



Examples

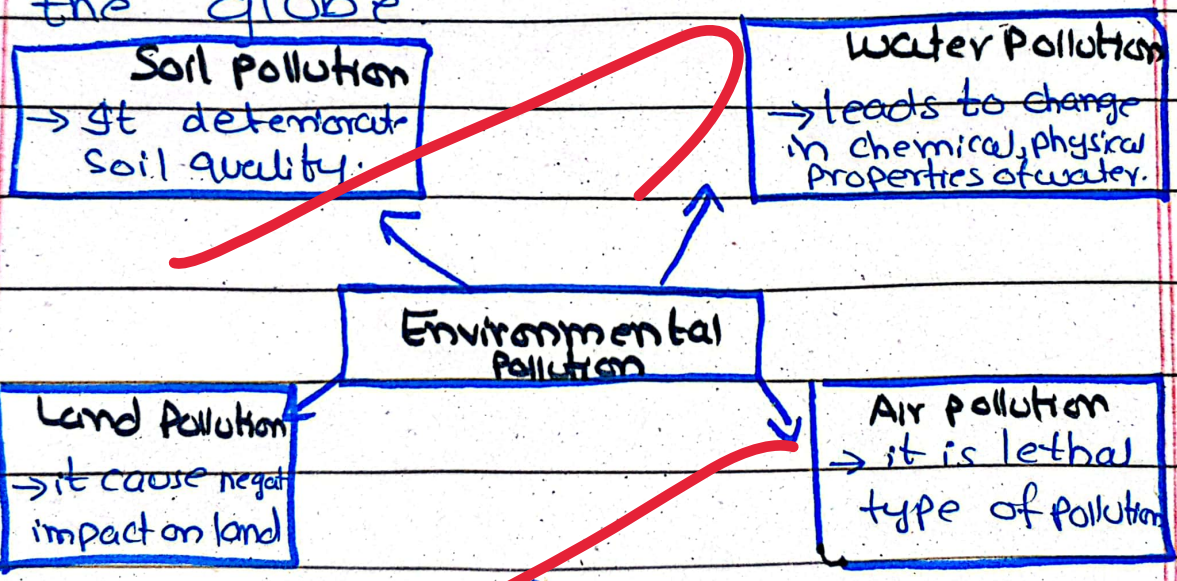
In 2004, a highly destructive Tsunami was occured in the Indian Ocean which resulted in

in the death of large number of innocent people

c

Environmental Pollution

The negative change in the composition, properties and quality of environment is termed as environmental pollution. Environmental pollution has resulted in climate change across the globe



Harmful Impacts

Environmental pollution has various negative and harmful effects.

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HARMFUL TEMP

H → It causes respiratory diseases in human beings like asthma, hyoxia etc.

A

R → Environmental pollution is the source of global warming that is driving climate change.

M

F

U → Due to rise in global temperature, glaciers are melting at speedy rate and which are causing floods aswell as water scarcity across the globe. 2022 Flood in Pakistan is the manifestation of it.

L

T

M

P

ACTS

A

C

T → Air pollution is decreasing the life expectancy of human being by 3-4 years.

S

Solutions

1) It is the need of hour to phase out fossil fuels from the world at immediate basis.
2) Renewable energy transition can help to mitigate environmental pollution.

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a) Fuel run vehicles should be replaced with electric vehicles. Pakistan has also announced its vehicles - electrification policy 2030.
b) All the combustible matters should be burnt in incinerators.
c) Scrubbers should be used in vehicles to reduce harmful gas emissions.
d) Remote sensing should be employed for tracking environmental changes.

d

Wireless Communication

It is a form of communication that doesnot requires wire connections to transmit signals.

Examples

Mobile phones are the best example of wireless communication. People can now talk each other, even located at wider distances.

Date:

Working of a Satellite

Satellites orbit around the Earth and sends information to the control units on the Earth. The working principle of a satellite is termed as Trilateration. A satellite is launched in the space with the help of a rocket. When rocket reaches the exact destination in space, it leaves satellite there.

After launching satellite, it start working there. Satellites send information on Earth by receiving different signal rays in space.

For determining exact location of an object with the help of satellites, it must be under the range of three satellites. In this way satellites operates.