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Name: Abeera Azim

Batch: O60 - RWP - Online

Roll No: 1809

Subject: GSA

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(SECTION - I)

Q3.(a) What is a wireless communication? Briefly explain the working of a satellite?

Ans. • 1-

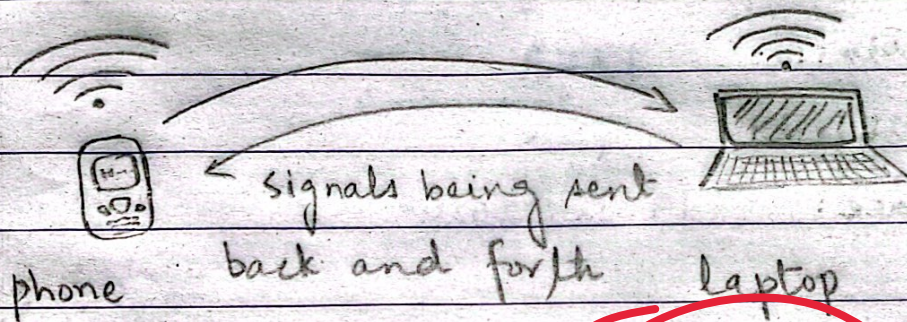
WIRELESS COMMUNICATION:

Wireless communication is the method of transferring data and receiving data, without the compulsion of using any wires or cables.

METHOD:

The exchange in data and the back and forth communication is done via the transfer of radio signals. These signals are sent with the help of the satellites present in the outer space.

DIAGRAM:



EXAMPLES:

Some of the examples of how wireless communication is used is

- 1- Global Positioning System (GPS)
- 2- Internet
- 3- military
- 4- Bluetooth
- 5- Satellites

SATELLITES:

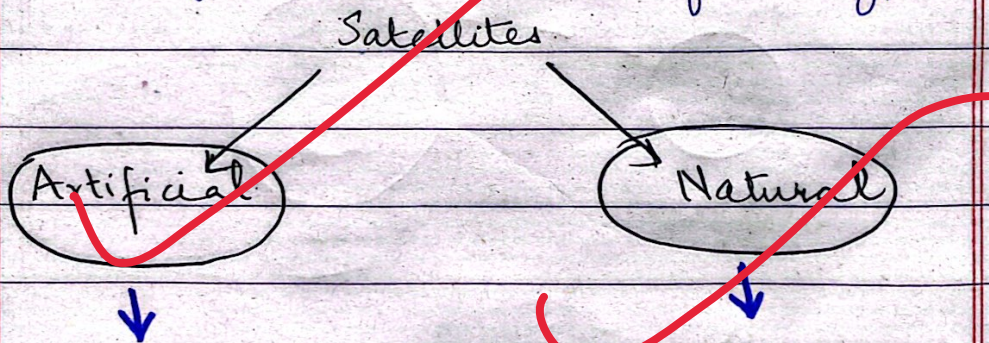
A satellite is an object that revolves around a bigger object. It is used in the sending and receiving of signals from - and - to Earth.

PRESENT :

It is a celestial body that is present in outer space, in the Earth's orbit

TYPES OF SATELLITES:

mainly, satellites are of two types:



These are the man-made satellites.

Formed on Earth and sent in space via space rockets

Example: GLONASS.

These are the satellites that are found naturally in space

Formed naturally in the Universe

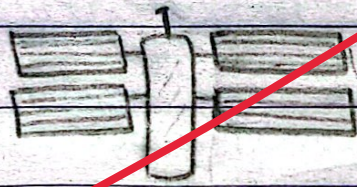
Example: The Moon

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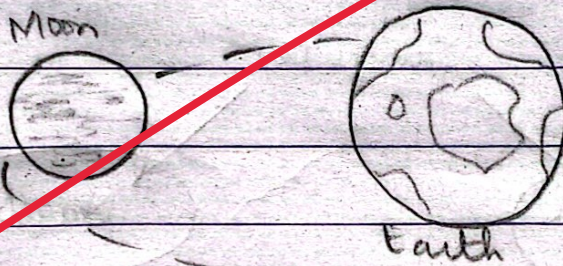
DIAGRAM:

(a)



an artificial satellite orbiting around the Earth.

(b)



a natural satellite orbiting Earth.

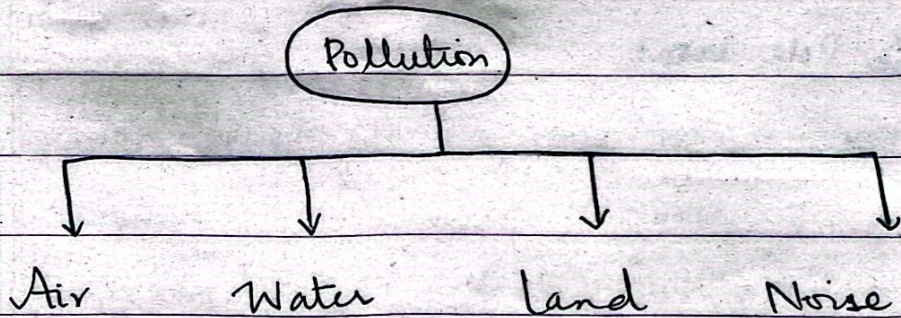
Q3(b) Discuss environmental pollution, its harmful effects and measures to curb it?

Ans:

ENVIRONMENTAL POLLUTION:

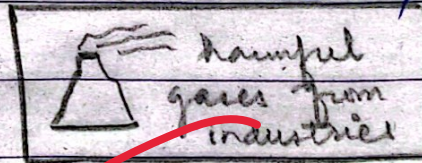
Any form of waste, dust, noise or rubbish that poses a hazard to the environment is called as environmental pollution.

TYPES :



a. Air Pollution:

The first type is air pollution, which is the release of toxic substances and harmful gases into the air. It is mainly due to burning of fuels, combustion, fires, industrialization, etc.



b. Water Pollution:

The release of toxins and other waste material into the water bodies. Other than that, any harmful acidic substances mixed with water, that makes it hazardous to consume, is called water pollution.

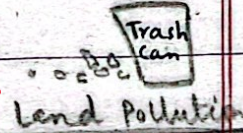
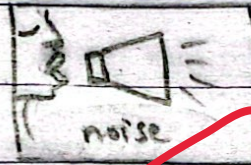
c. Land Pollution:

The disposing of rubbish, waste materials, litter or any sort of trash on road sides and land itself, is called land

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d. **Noise Pollution:**



Lastly, the presence of loud noises and eruptions, primarily due to construction, cars, industrialization, etc is called noise pollution

• **EFFECTS OF POLLUTION.**

a) **Air pollution:** Causes Smog, Dust, Dirty air, breathing problems, Asthma, burning of eyes, effects the visibility, etc.

b) **Water Pollution:** Contaminates drinking water, effects the water usage for activities in daily life (cooking, washing, bathing), hard water, effects the life of the sea animals and can potentially kill them. Can cause diseases like hepatitis, cholera and typhoid.

c) **Land Pollution:** Makes the environment dirty, garbage is not recycled, can lead to the spreading of

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many diseases, pollutes nature itself.

- d) Noise Pollution: Creates nuisance, disrupts the peace and serenity, excessive exposure to high-volume sounds can affect one's hearing ability.

MEASURES TO CURB IT:

1. Recycle waste
2. Avoid industries near city areas, but rather produce near city outskirts.
3. make use of renewable energy sources - to reduce ^{use of} harmful gases.
4. Use sustainable methods of production and consumptions.
5. Avoid creating chaos.
6. Do not dump wastes on water bodies
7. make sure to keep a check on water and its sanitation.
8. Do not pollute and throw rubbish beside of trash cans.

Q 3(a) Explain and draw the structure and function of a sun?

Ans.

THE SUN:

1. It is a giant star and the largest object in the solar system. It is a mass of hot gases.
2. Its average life span is up to 10 billion years.
3. The age of the sun is 4.5 billion years.
4. The sun is surrounded by 8 planets:
 - Mercury
 - Venus
 - Earth
 - Mars
 - Jupiter
 - Saturn
 - Uranus
 - Neptune
- Terrestrial/rocky planets:
Mercury, Venus, Earth, Mars.
- Icy planets:
Jupiter, Saturn, Uranus, Neptune.

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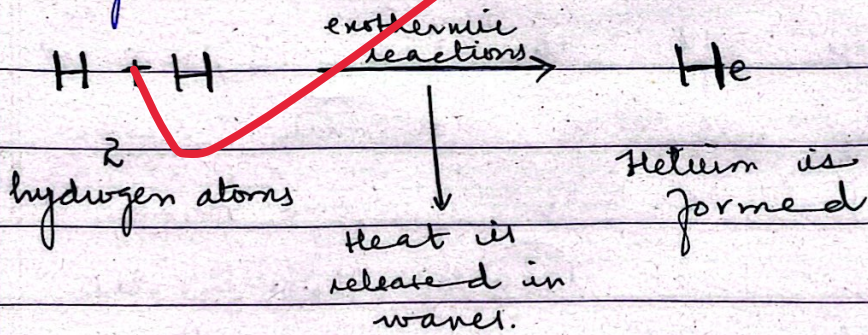
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Gaseous Planets:

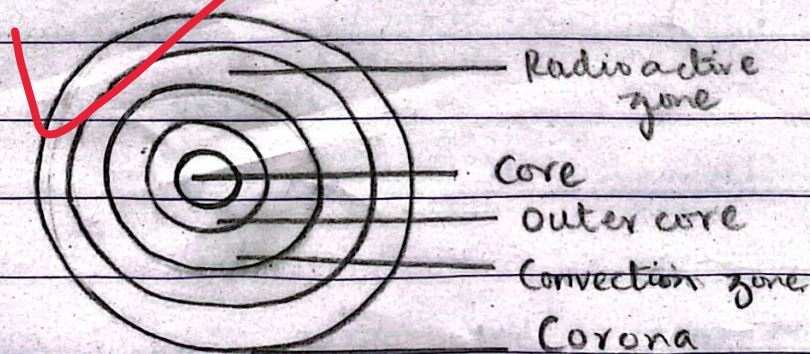
Uranus, Neptune.

HOW DOES THE SUN PRODUCE HEAT:

It is produced by the fusion of two hydrogen atoms to produce helium. The process is an exothermic reaction and heat is released in the form of electromagnetic waves.



STRUCTURE OF SUN:



The Sun

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a.

Core :

The Core is central part of the Sun. It is the hottest part of the Sun. It is often referred to as the engine room of the star itself.

The temperature in the core can go upto 5500°C .

b.

Outer Core :

The outer core is the second layer after the Core. It surrounds the core. The exothermic reaction takes place in the core and the heat travels through the outer core and into the radiative zone.

c.

Convection zone :

Heat coming from the core and the inner core, passes through the convection zone.

The heated particles pass through this zone but many of them are left behind and they remain trapped

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there for millions of years.

d. Corona:

It is the outermost layer of the sun. Heat is released from it in the form of solar winds. It takes 0.8 sec for heat from the sun to reach Earth. Corona is also responsible for the phenomena of the Northern and Southern lights.

Q3(d) What is a tsunami? How is it generated? Give examples of recent tsunamis?

A..

TSUNAMI:

A series of waves in a water body, caused by the large displacements of water, is called a tsunami.

CAUSES:

• Volcanic eruptions.

• Movement of the Earth's tectonic

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plates.

• landsliding.

• Glacial melting.

• **EFFECTS :**

• Loss of animals and human life.

• Effect on marine life and the animals residing in the water bodies.

• Economic loss.

• Infrastructural loss.

• Destruction.

• Ruins the crops and vegetation.

• **MEASURES AGAINST IT :**

• To look out for any early warning signs.

• Evacuate the areas near water.

• Go into a shelter or safe place.

• Install floodgates

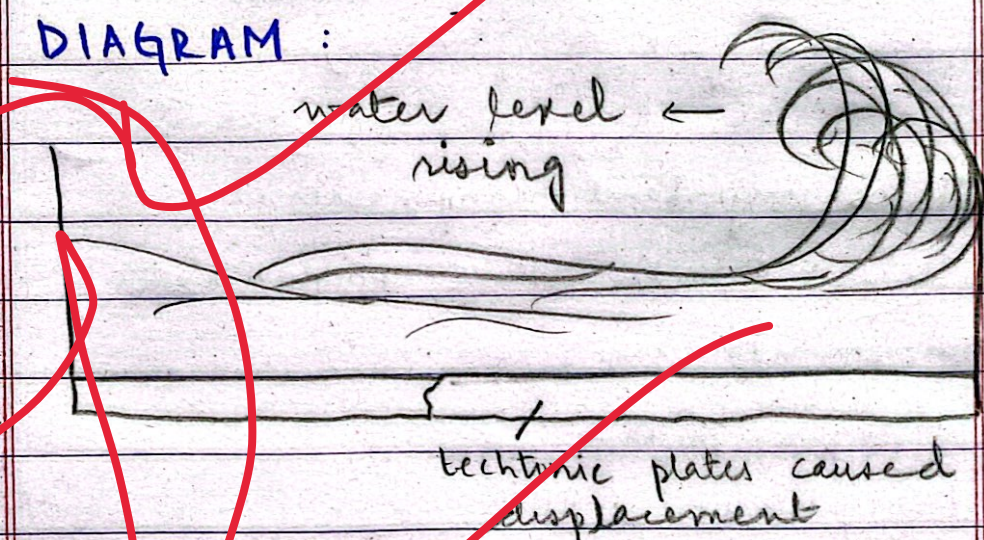
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- Go to an area at a higher altitude.

- **DIAGRAM :**

water level ←
rising



tectonic plates caused displacement

- **EXAMPLES :**

most recent tsunami reported was in Japan, in the year 2022.

Q4.(a) Explain Fertilizers? What are their types?

Ans.

FERTILIZERS :

Any material, present naturally or produced artificially, to facilitate the growth and sustainability of a plant or crop is called as a fertilizer.

• COMPONENTS :

Essentially, a fertilizer is made up of 16 important components.

Three important components:

Three of the more important components are

- 1 - Nitrogen (N)
- 2 - Phosphorus (P)
- 3 - Potassium (K)

• CLASSIFICATION OF THE FERTILIZERS:

Essentially, fertilizers are classified into two major categories. On the basis of their completeness and on the basis of their authenticity.

1. Classification - I

Organic

This is when these components are naturally present in a plant's soil.

Inorganic

This is when any kind of fertilizer is assimilated in the soil.

E.g
Nitrate

E.g
 $CaCO_3$

Classification - II

Complete

Contains all the three essential components; K, P, N.

E.g

Zorawan and Zerkhaiz by Engro Fertilizers.

Incomplete

Contains either one or two of the major three components.

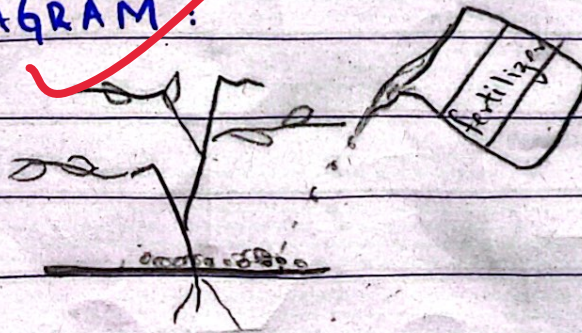
E.g

- NP
- NK
- KP

USES:

- Boosts plant growth.
- Protects it from ruising
- Provides minerals to the soil.

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Q4(b) What is the anatomy of a human tooth?

Ans.

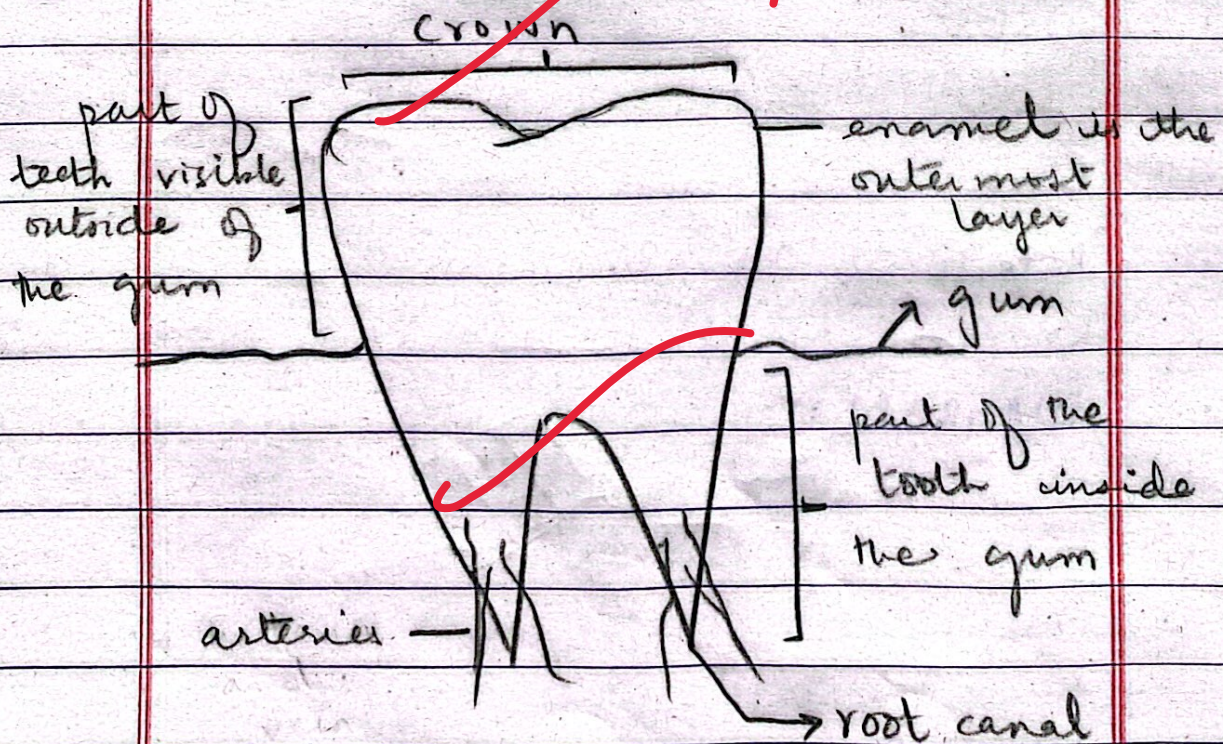
HUMAN TOOTH:

A human tooth is a part of the mouth cavity.

FUNCTIONS:

- Helps in the breakdown of food.
- Prepares the food for digestion.
- Helps mix it with the saliva.
- makes the food swallow-able.

DIAGRAM:



TOOTH

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- Crown → Uppermost area of the tooth
- Enamel → Protective covering around the tooth.
- Arteries → Giving the blood supply
- Root Canal → The base of the tooth.

Q4(c) What is hepatitis? Causes, symptoms, treatment?

Ans.

HEPATITIS :

It is a disease of the digestive system that is caused mainly by consuming contaminated food / water, or by sharing instruments without sterilization.

It can also adversely affect the blood platelets in the body.

TYPES :

Hepatitis A.

Hepatitis B.

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Hepatitis C

Hepatitis D

Hepatitis E.

The difference lies on the basis of source of getting sick i.e. by

- Engaging in sexual behaviour with multiple partners
- Using / sharing instruments
- Consuming contaminated beverages or food.

SYMPTOMS:

Yellow skin colour

Blood in urine

Black stool

No appetite

Fever

Body aches.

TREATMENT:

Medication - like antibiotics

Avoid using someone else's personal belongings, specially in public

Refrain from consuming dirty

good or benefices

- Not engage in excessive sexual behavior.

(SECTION - II)

(a)
Q. no 7.

Distinguish between I.Q & E.Q?

Ans. **I.Q** :

- IE means the Intelligence Quotient of an individual
- It refers to the personal intelligence or capacity of an individual.
- It is determined by a person's ability to solve problems, do deductive reasoning, and make use of his cognitive abilities.
- The greater the IQ of a person, the more is his level of understanding, capacity, intelligence and problem solving.

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E.Q :

It means the Emotional Quotient of a person refers to an individual's ability to make use of his emotional intelligence

Determines how people balance their emotions and day to day life, without mixing them both together.

It is the game of the heart vs. the brain.

(b) Peter can mow the lawn....

Ans Solution :

Time taken by Peter to mow the lawn = 40m

Time taken by John = 60m

Taking average,

$$60 + 40 = 100$$

$$\Rightarrow \frac{100}{2} = 50$$

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It will take them 50 mins to mow the lawn together.

Q no 6 (a) Identify the missing:

1. 13, 24, 46, 90, 178,

$$13 - 24 = 11$$

$$24 - 46 = 22$$

$$46 - 90 = 44$$

$$90 - 178 = 88$$

So,

$$88 \times 2 = 176$$

13, 24, 46, 90, 178, 354

Q no 6 (b) A man ordered ...

solution:

Ratio of pizzas:

Small medium large

2 : 3 : 4

4 slices : 6 slices : 8 slices

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40 gram = size of one slice

• Total slices in whole pizza = 8

$$40 \times 8 = 320$$

Total weight of the pizza

is 320 grams.

• Price of 4 slices = 320 Rs.

" " 8 " = 320 x 2

$$= 640 \text{ Rs.}$$

Price of whole pizza is 640 Rs.

Explain complex concepts in simple terms.

Use real-life examples to illustrate principles.

Include diagrams and flowcharts to illustrate processes.

Discuss practical applications of scientific concepts.

Show all steps and working for calculations.

Use diagrams and graphs to illustrate concepts.

Understand the question carefully