

Question no 1 (CSS 2020)

(A) What do you know volcanoes? Discuss the causes and effects of a volcanic eruption.

Answer:-

### Volcanoes

Defination:-

A volcano is an opening in the Earth's crust through which molten rock, gases and ash escape from the interior to the surface.

Location:-

Volcanoes are mostly found along tectonic plate boundaries, where the Earth crust is weak.

Examples:-

- (i) Mount Fuji in Japan
- (ii) Mauna Loa in Hawaii
- (iii) Mount Etna, Italy



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## Causes of a Volcanic Eruption

Volcanic eruptions are primarily caused by the movement of molten rocks called **magma**. When magma rises due to pressure, it forces its way through cracks and vents.

### (1) Movement of tectonic plates

When the tectonic plates move away from each other, magma from the bottom is allowed to rise to fill the gaps, which causes an eruption.

### (2) Accumulation of Gases

The accumulation of gas within magma, which increases pressure and weak points in the crust that allow magma to escape.

## Effects of Volcanic Eruption

It has immediate and long-term effects on the

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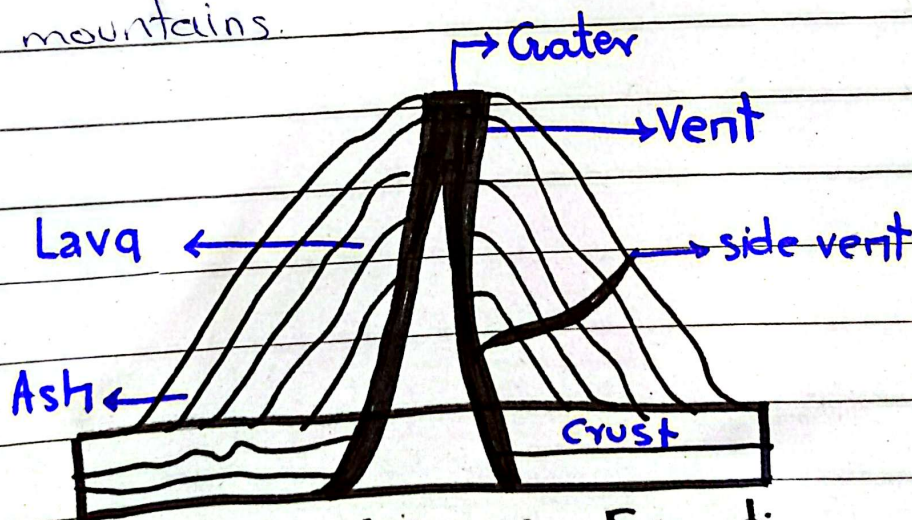
environment and human life.

(1) When lava flows, it can destroy homes, forests and farmland.

(2) The release of Volcanic Gases such as sulfur dioxide can lead to Acid rain and temporary climate cooling.

(3) Ash clouds block sunlight, and cause respiratory problems.

(4) Over the time, eruption can create new landforms such as Islands and mountains.



**Fig: Volcanic Eruption**



(B) Explain how a slice of bread after few days decomposes due to the growth of fungi.

Answer:-

A fungi such as *Rhizopus* commonly called black bread mold is responsible for the bread decomposition. When bread is kept in warm environment for a few days, mold grows on bread.

### Role of fungi in Decomposition

A slice of bread, when left exposed to air and moisture, gradually decomposes over a few days. This decomposition is mainly caused by the growth of fungi, which are tiny organisms that feed on organic matter.

Factors:-

The factors that



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accelerating the growth of mold are

(i) Temperature

(ii) Moisture

(iii) Acidity.

### \*Decomposition of Bread By Funji

Bread slice left in air and moisture

Fungal spores land on Bread.

Spore Germination begins

Hyphae grow

Mycelium formation

Visible mold appears

Bread softens and darkens

Complete decomposition of bread.



(C) What is GPS? How does it work?

Answer:-

## Global Positioning System

GPS - stands for Global Positioning system. It is a satellite-based navigation system that allows a person or device to determine its exact location anywhere on Earth.

### Uses of GPS

→ GPS is widely used in smartphones, vehicles, ships and for mapping and scientific purposes.

### How GPS works:-

GPS works through a network of satellite orbiting the Earth that continuously send signals containing their location and the exact time the signal was transmitted.

## GPS receiver:-

GPS receiver picks up signals from at least four satellites and calculate its distance from each one based on the time the signals took to reach it.

Using a process called trilateration, the receiver determines its precise location on Earth, providing accurate location for navigation and tracking.

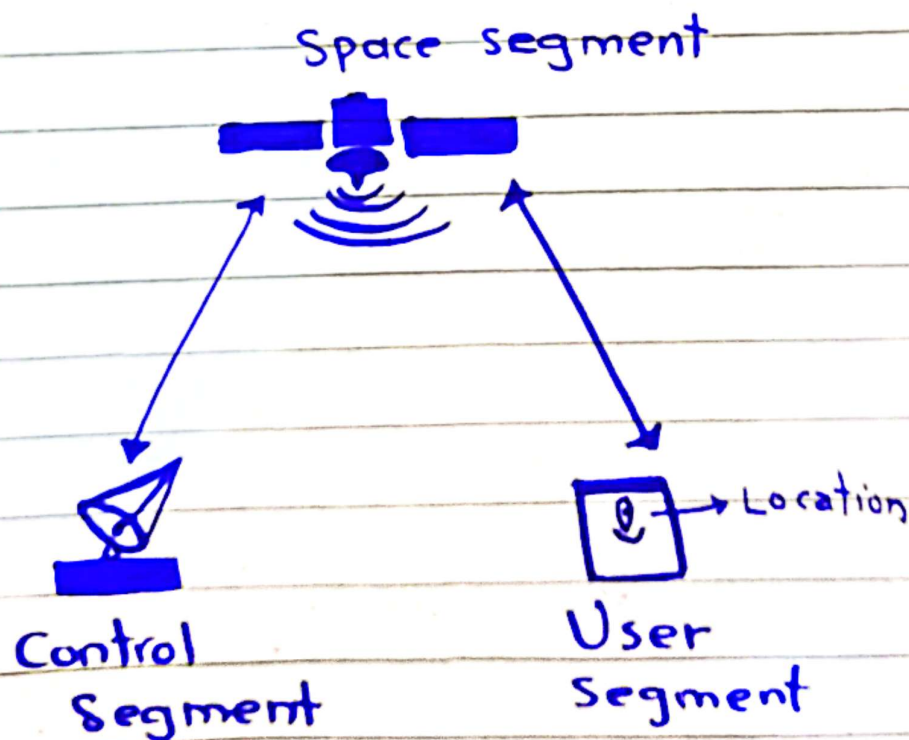


Fig:-GPS



D- What do you understand by DNA and RNA?

Answer:-

## Nucleic Acids

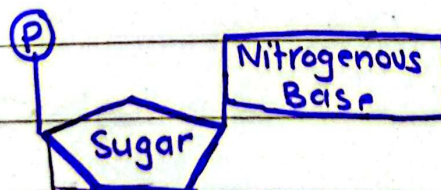
Nucleic acids are the polymers of nucleotides. It includes DNA (Deoxyribonucleic acid) and RNA (ribonucleic acid).

## Nucleotides Units

Nucleic acids (both DNA and RNA) are polymers made up of monomers called nucleotide units.

The nucleotide units are made up of

- (1) a phosphate unit,
- (2) a sugar
- (3) a nitrogenous base.



Types:- There are two types of nucleic acids.

- (1) DNA
- (2) RNA

## DNA

## RNA

### STRUCTURE

(1) DNA has a double helical structure.

→ RNA has a single-stranded structure

### Discovery

(2) In 1953, Watson and Crick discovered DNA, and they <sup>were</sup> awarded Nobel prize in 1962.

→ In 1909, Walter Seigfried ~~discovered~~ discovered the RNA.

### TYPE

(3) It is the type of nucleic acid.

→ It is also the type of nucleic acid.

### Composition

(4) DNA strand is made up of nucleotides.

→ RNA strand is also made up of nucleotides

### Nitrogenous Bases

(5) The nucleotides of DNA includes

(i) Adenine

(ii) Guanine

(iii) Cytosine

(iv) Thiamine

→ RNA contains nitrogenous bases

are  
(i) Adenine

(ii) Guanine

(iii) Uracil

(iv) Cytosine



**DNA**

6-The diameter of DNA is 2nm

**RNA**

→ It is essential for all forms of life

**TYPE OF Material**

7-DNA is a hereditary material

→ RNA is not a hereditary material but used in protein synthesis

**Units**

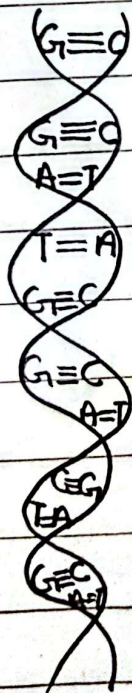
8-The 5-carbon sugar is deoxyribose

→ The 5-carbon sugar is ribose

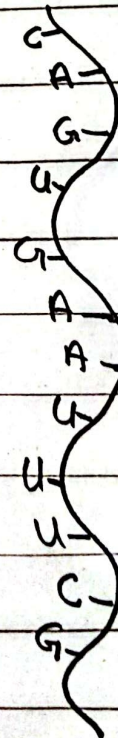
**Diagram**

A=T

G=C



DNA



RNA