

Muhammad Atham

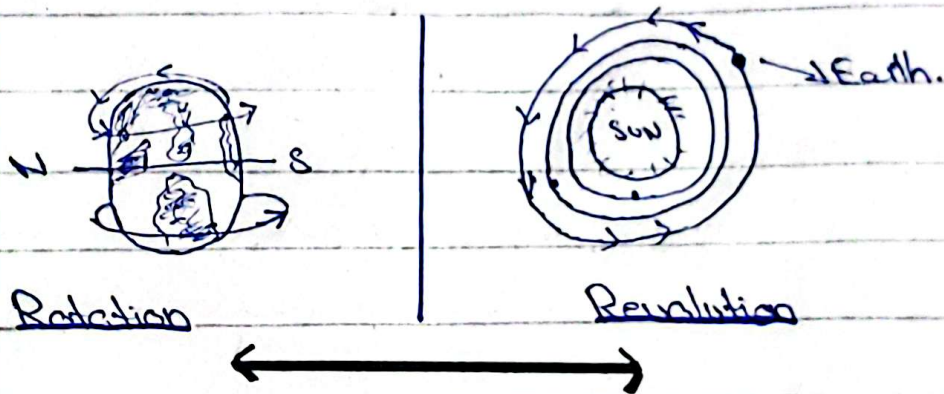
GSA - First Quarter

Q1: Explain the difference between rotation and revolution as they applied to planets.

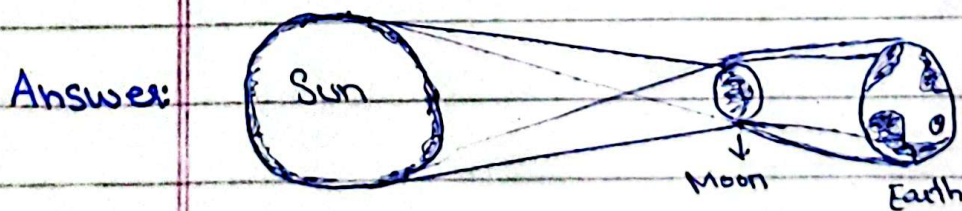
Ans: Rotation: Rotation refers to the spinning of a planet around its own axis. For example, the earth rotates around its own by following the imaginary line from the north pole to the south pole. Earth usually takes 23 hours and 53 minutes which is approximately considered as a day and this process is responsible for the changing patterns of day and night.

Revolution: Revolution is the movement of a planet around an external object, such as earth. For example, the earth completes

revolves around the sun and completes its one circle in 365.25 days which is also considered as a complete year. The revolution of earth around sun is responsible for the changing positions of climate on earth's surface because while revolving, the earth tilts from his own axis at 23.12° .



Qno2: Describe the process of how a solar eclipse occurs.



A solar eclipse occurs when the moon comes in between

the sun and the earth, and blocks the sunlight falling directly on the earth's surface, casting his own shadow.

There are three types of solar eclipse

1) Total Solar Eclipse: When the moon comes in between at the center and blocks the complete sunrays.

2) Partial Solar Eclipse: This happens when the moon is not present in the center, but some part of it covers the sunlight falling to earth.

3) Annual Solar Eclipse: This happens when the moon is farther from the earth and upon blocking the path of sunrays, it forms a ring like circle of fire.



Question 3: List three renewable energy sources and explain why they are considered as "renewable".

Answer: Renewable energy source:

These are the

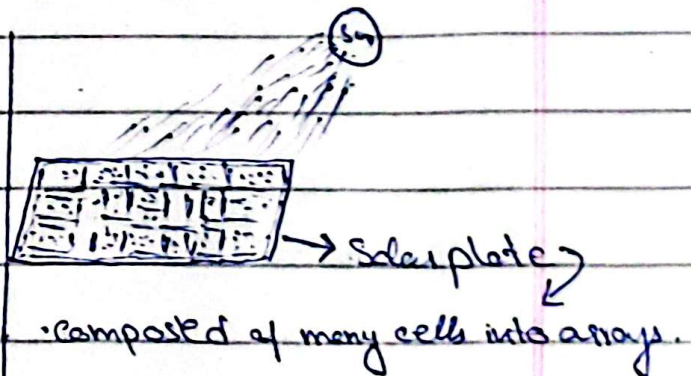
sources of energy that are replenishing. They are present in vast amount and can be used to produce energy, which does not even effect environment.

Three renewable energy sources are:

1) Solar Energy

Sun is the single most important source of solar energy, contributing more than 98%. Sun transfers its energy in the form of radiation which can be converted into energy such as electricity by using photocells, solarplates etc.

When the light falls onto the plate, it absorbs the light and changes it into electricity.

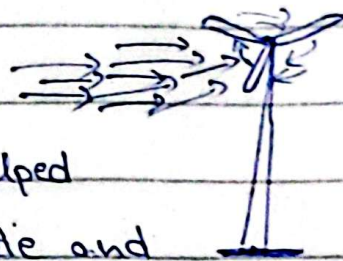


(2) Wind Energy

Naturally flow of wind can also be used to generate energy. For this purpose, the recommended

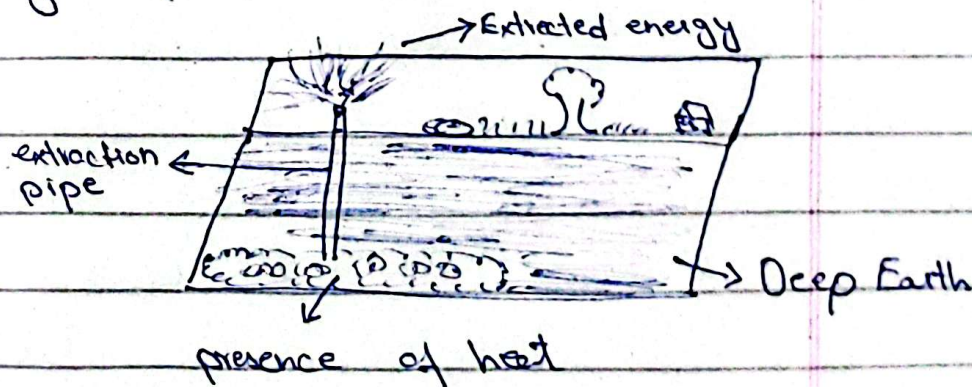
speed of wind is above 15 kmph.
Wind turbine are used to generate electricity through the wind. They are most placed near coastal belts.

When the wind strikes these fans, they helped the generator to operate and produce electricity.



3) Geothermal Energy

Geothermal energy is the heat energy that is present beneath the earth's surface. It has been used for hundreds of years to produce electricity and for heating purposes.



→ Why they are called renewable?

These are the naturally occurring sources of energy that are reproducible by the nature itself. They are a source of energy from the thousands of years and will be continued to produce energy.



Q 4: Compare and Contrast the properties of conductors, insulators and semi-conductors.

Ans: Conductors:

Conductors are those materials which allow electricity and heat to pass through them, because of the presence of loose electrons. For example: Steel, copper, gold, aluminium etc. Almost every metal is considered as a conductor except a few.

Insulators:

These are the substances which do not allow electricity to pass through them but somehow absorb the heat. These substances are

also referred as bad conductors. These include: Rubber, wood, plastic etc. These are non-conductors due to the strongly held electrons in them.

Semi-Conductors:

These are the substances have the properties of both conductors and insulators. They are also known as the inbetween ~~conduct~~ substances that can and can not conduct electricity. However, they are widely used to control and maintain the electric current in a variety of devices.



Q #5: What are the three main types of chemical bonds and what are the key differences between them?

Ans: Three main types of chemical bonds are:

- 1) Ionic Bond
- 2) Covalent Bond
- 3) Metallic Bond

Key differences between them:

(1) Ionic Bond:

Ionic bonds are formed, when one atom loses an electron while the other atom gains an electron. This led to the formation of an ion on the atom. This type of bond is usually formed between both metals and non-metals.

(2) Covalent Bond:

This type of bond is formed when two atoms share one or more pairs of electrons. They usually occur in non-metals. This is done to complete the outermost shell to achieve stability.

(3) Metallic Bond:

Metallic bond occurs between metals only. In this type of bond, metals do not lose or share electrons, instead they are delocalized forming a sea of electrons. Which means that they are free to move in the structure and hence

