QNo3

Global warming

Global warming: an overview

Global warming is a phenomena in which multiple gases, known as green house gases (GHGs) get emitted into atmosphere and fail to get out of it resulting in the entrapment of sunlight in the blanket made by GHGs. This in turn increases the overall temperature of the earth.
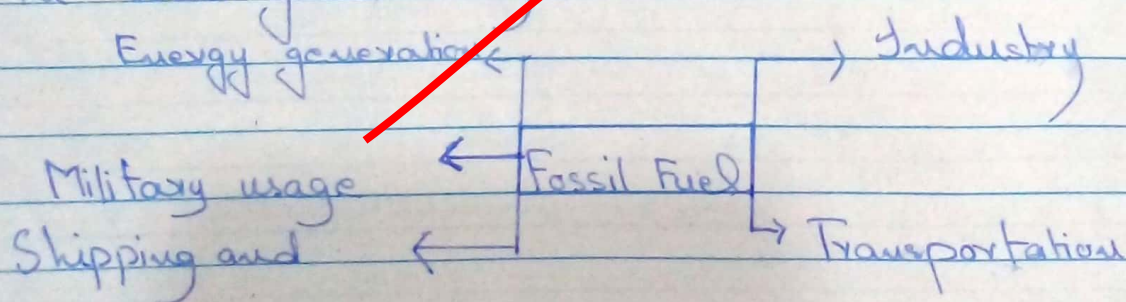
II. Current situation of GW

As of now, GW is a leading phenomena for the havocs of climate change. The average temperature of Earth is rising at a faster rate of $2.1°C$ per year.

III. Factors causing GW

Several gases, emitted from different point and non-point sources make a blanket over atmosphere. These gases are as followed i.e CH_4, CO_2, NO_2, NH_3, SF_4, CFC, CO etc.

Sources of GHGs emissions

i) Fossil fuels :- Burning of fossil fuels in different sectors are leading to the carbon emissions. These sectors are manifested in below given diagram.

Energy generation → Industry

Military usage ← Fossil Fuel → Transportation

Shipping and ←

ii) Burning of agricultural waste

Agricultural waste is burned on the spot that generates carbon dioxide CO_2, Carbon Monoxide CO and many other harmful substances.
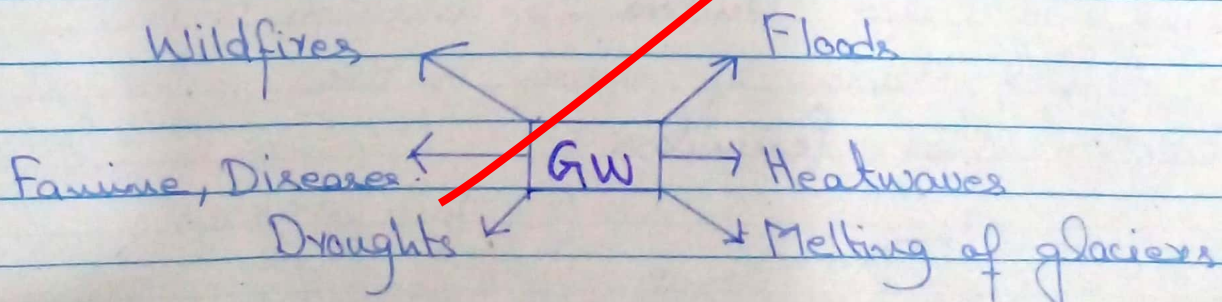
iii) Livestock farming

Livestock farming contributes to the great deal of carbon emissions. It has been found that a single cow can emit 27 tons of carbon in her whole life. Methane gas is the leading gas emitted from livestock farming.

iv) Commercial activities

Commercial activities include industry at small and medium scale, it also includes construction projects, coorporate activities etc. These all anthropological activities generate carbon and carbon adds to the GHG emissions causing global warming.

Impacts of global warming.

Wildfires ←   → Floods

Famine, Diseases ←   GW → Heatwaves

Droughts ↙   ↘ Melting of glaciers

(d)

=> What is eclipse? Distinguish b/w solar & lunar eclipse?
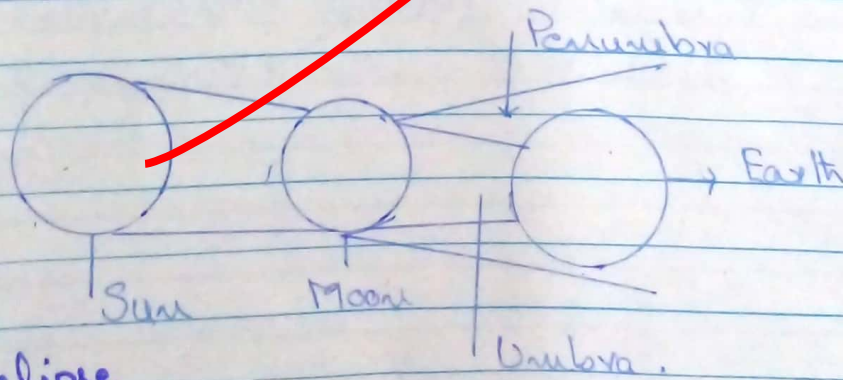
Definition:

When a celestial body is over-shadowed by another celestial body, this phenomenon is said to be eclipse.

i) Solar Eclipse

Earth revolves around the Sun in its orbit and moon revolves around the Earth. In this rotational process, when moon comes between the Earth and the Sun, certain parts of the world having day time witness solar eclipse for a brief period of time because moon blocks the sunlight reaching the earth for a brief period of time.

Anatomy of solar eclipse

When moon comes between the Earth and the Sun, it casts a dark shadow of a conical shape on Earth which is called Umbra. In addition to this, a lighter shadow of moon is also casted on Earth called Penumbra.
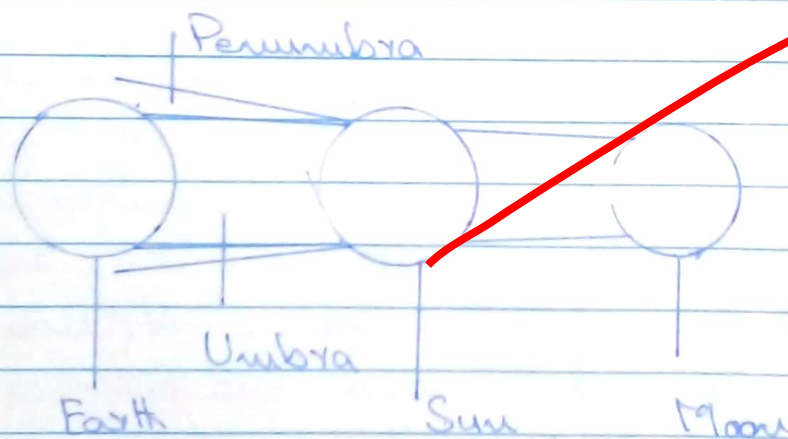
Penumbra

Earth

Sun   Moon

Umbra.

Solar Eclipse

Lunar Eclipse.

When Earth rotates around the Sun and moon rotates around the Earth. A time comes when the Sun comes between the Earth and the moon. The Sun overshadows the moon for a bit longer time. In this situation, the areas on Earth having night witness lunar eclipse.

Anatomy of lunar eclipse

When Sun comes between moon it casts a large umbra and a small penumbra.

Lunar eclipse.

Difference

Solar Eclipse	Lunar Eclipse
i) Once a year	i) 3-4 times a year
ii) Large Penumbra	ii) Small Penumbra
iii) Small Umbra.	iii) Large Umbra
iv) Brief period of time.	iv) Longer period of time.

Origin of universe

Although universe has origin that has not been defined in an exact manner. However, there are certain theories regarding the origin of universe. The most prominent theory is Big Bang theory.

i) Big bang theory

This theory illustrates that before universe, nothing existed except the matter. The whole universe was just a matter. In the following events, a big bang happened and the matter exploded emitting billions of centigrade of energy.

Soon after big bang, the universe started forming by getting cold. The colder the universe got, the more the formation of new objects it experienced. The Sun, the stars, the galaxies the moon, the Earth and all micro and macro molecules are formed by cooling of the universe. It is also considered that the universe is ever-expanding.

ii) Elastic rebound theory :-

Another theory claims that matter extended and in this matter unfolding, the universe came into being and with the ever-expanding nature of it, it would go to its maximum extent and then it will collapse. This would be the end of universe.

How the age of universe is calculated.

Although, calculating the age of universe is scientifically a daunting task, however, the astronomers calculate the age of universe in two ways.

i) Astronomers calculate the age of oldest stars and from this, they calculate the age of universe.

ii) Astronomers calculate the rate of expansion of the universe and extrapolating this rate from the beginning of the universe. In this way, they assess the age of universe.

Scientists beleive that the universe is almost 13-20 billion years old.

What is AI

AI is the intelligence of machines and softwares as compared to the intelligence of humans. It is the subject of computer science that work on intelligent machines to enhance the capacity of machines to work and further improve the quality of life for humans.

However, with the advent of AI the debate has started whether it is useful or not. Following are the advantages and disadvantages of AI.

Advantages of AI.

i) AI can revolutionize medical sciences by precision diagnosis and recommending treatments.

ii) AI improves industrial output by increasing efficiency of the machines.

iii) AI is environmental friendly as it reduces carbon emission and reduces waste generation, thereby good for environmental protection.

iv) AI can help humans fighting disasters of climate change by data evaluation, storage and prediction of natural disasters.

v) AI can change the method of learning and education and can improve the learning abilities of individual child as per the aptitude of children.

Disadvantages of AI

i) AI would snatch 35 million jobs till 2030 as per the world economic forum.

ii) AI would give a cultural shock to many conservative societies.

iii) AI has not proven itself as error free as it has raised serious concerns over the precision diagnosis.

iv) AI has not proven itself to be the indiscriminate toward genders as it has somewhere sexualized the girls.

v) Many say, AI would not substitute the emotions, passions of human mind.

(C.)

Lidar: Works on land using laser light.
Radar: Works in atmosphere using radio waves.
Sonar: Sonar works underwater. It uses sound waves.
Mobile Phones: Mobile phones use radio frequency waves for communication.