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Batch 54

Mock exam: GSA

Section 1

Question 4

Q.
a. Define the following:
   pesticide, Herbicide, Insecticide, Ceramics and Greenhouse effect.

Pesticide:

A substance used for killing and destroying for any other harmful organisms that destroy crops/plants is called pesticide.

Herbicide

A substance which is used to get rid of unwanted vegetation or weeds is called Herbicide.

Insecticide

A substance used for killing insects is called insecticide.

Greenhouse effect

A process in which heat from the Sunlight is trapped by the green house gases in the earth's surface is called Greenhouse effect.
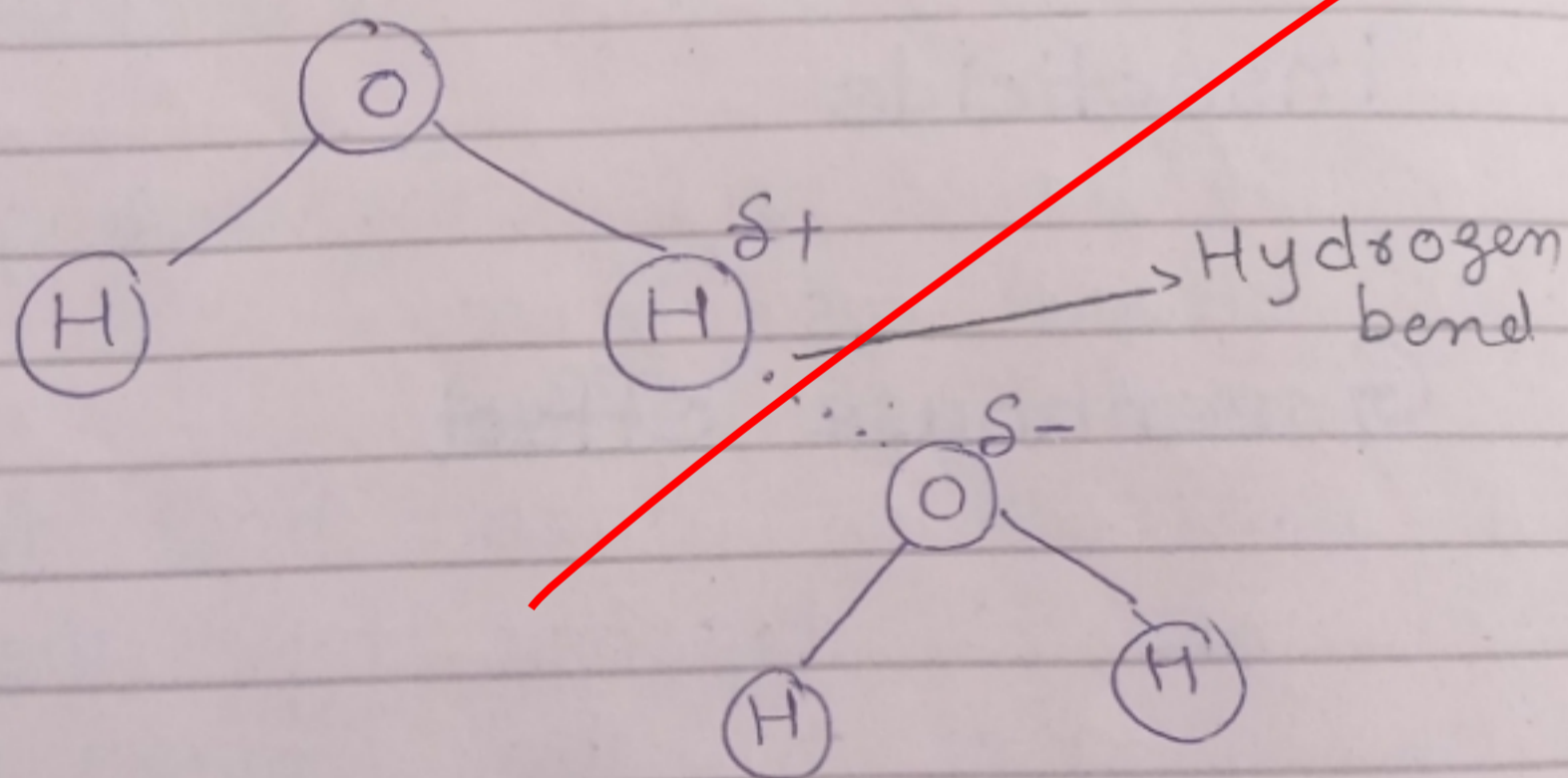
b. Explain the bonding in water molecule.

Bonding of H_2O molecule

H_2O molecule is polar in nature. It consist of two Hydrogen molecule atom and one Oxygen atom. Two

Hydrogen atom are bonded with oxygen atom and its over all structure is bent, because apart from making bond with Hydrogen it also carries two unshared electrons.

Because of polar nature of H_2O molecule, the H_2O molecule attract each other & form bond. positive end of one molecule & Hydrogen atom associates with negative end of another &{Hydrogen O_2 atom and form bond called Hydrogen bond.

c. What type of waves are used in Radar, Sonar, Lidar, mobile phone and Thermistors?

Wave used in Radar.
Radar uses radio waves

Wave used in Sonar
Wave used in sonar are ultra sonic waves.

Waves Used in Lidar

Lidar uses infrared waves

Waves used in Mobile phone

Waves used in mobile phone are radio waves.

Waves used in Thermister

Waves used in thermister are heat waves.

(d) What are advantages and disadvantages of AI.

Advantages of AI

(1) Medical applications

It has made contributions in the field of medicine from diagnosis to treatment to drug discovery and clinical trials. AI powered tools helps doctors & researchers analyze patient data & identify potential risk, diagnose & make specialized treatment plan

(2) AI in Risky Situations

By creating robot, we can perform risky tasks by keeping human live safe. for example tasks like defusing bomb, going into mars, exploration of depths of ocean or any other manmade or natural calamity.

(3) Perform Repititive jobs

We will be doing repititive tasks

in our lives, which are time consuming and boring too, like checking or proof reading documents, mailing thank you or any other notes. So AI can be approached to do these menial & boring jobs for us.

(4) Reduction in human error

It can significantly reduce errors & increase accuracy and precision in our works.

Disadvantages of AI

(1) High costs

It requires plenty of time & resources & money to use AI.

(2) Lack of Creativity

Although, AI provides information & articles but it writes on its own, what it is already fed with. There's lack of Creativity in information and nothing new

(3) Unemployment

The benefits of & disadvantage of AI is that it is replacing humans, and robots are made to work in many arenas of life, like media, companies etc. So human are at risk of

losing employment.

(4) Make human lazy

It makes human lazy. As we are dependent upon AI to perform for us our mental tasks, provide us information at hands without us searching and using our brains to connect & find the relevant details ourselves. So humans are becoming lazy.

Question : 3

(a) Global warming is a wild beast and we are all poking at it which sticks, justify.

Global warming

It is an international problem. instigated by humans. When there's a phenomena where GHGs trap heat from sun and causes increased global temperatures this process is called global warming.

(1) Rapid Industrialization

Rapid industrialization is one of the cause of global warming instigated by humans. With rapid industrialization more CO_2 is released in the atmosphere, which cause global warming.

(2) Population Explosion

With increase in population, more people are added to the feeding cycle. To meet the demands of such a huge people, more industries are run: a cause of global warming.

(3) Deforestation

As population increases, more forests are cut down to make buildings, living areas and factories etc. As forests act as CO_2 sinks and takes in CO_2 of atmosphere and carry out photosynthesis. If there are no forests, CO_2 will remain in the atmosphere and cause global warming.

(4) Generation of solid waste

As there is no proper disposal mechanism of solid waste like dumb, which pollutes air & releases CO_2 and contribute to global warming.

(5) Rapid Urbanization

As with growing population, demands grow, people migrate to cities has direct link with global warming

(6) Combustion of fossil fuels

Combustion of fossil fuels by humans like coal, oil etc release CO_2 which cause global warming
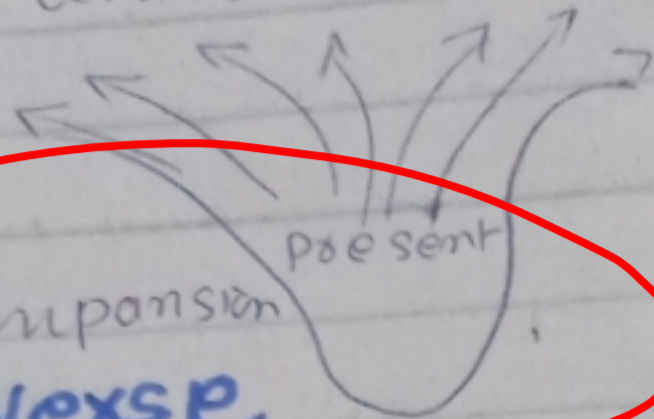
b. What is Origin of Universe. how age of Universe Can be calculated.

Origion of Universe

Astronomers believe that some 38 bn years ago Universe emerged from a big bang. which is called big bang theory, a leading explanation for origin of universe.

There was a singularity, small than pin hole, from which universe expanded. From Universe in fractions of Seconds, Space time and matter began to form. Then universe cooled and energy changed into matter and anti matter. which destroyed each other and stable particle called proton and neutron began to form in next 3 minutes temperature dropped below 1 bn degree Celsius, giving wey for proton & neutron to come together forming H & He nuclei. After 300000 yrs atomic nuclei captured electron & formed atoms. Universe was then filled with clouds

Headings?

of H & He atoms which later on formed celestial bodies and then universe is still expanding

expansion present

Age of universe

1) By looking at oldest star   2) by measuring rate of expansion of universe

(C) Write a short note on Semi Conductor?

Semiconductor

Definition:
A material which has {prop}r electrical properties in between Conductor and insulator is called Semi Conductor.

Types
It has two types
(1) Intrinsic Semi Conductor
(2) Entrinsic Semi Conductor

(1) Intrinsic Semi Conductor
A Semi Conductor in its pure form is called intrinsic Semi Conductor.

(2) Extrinsic Semi Conductor
A When an impurity is added to a Semi Conductor it is called entrinsic Semi Conductor.

It has 2 types → N-type
→ P-type

(1) N-type
When impurity is added to
Semi conductor from 5th group
of periodic table is called
N-type

(2) P-type
When impurity is added from
3rd group of periodic table
to Semi conductor it is
called P-type.

(d) What is an eclipse?
Distinguish between Solar and
lunar eclipse.

Eclipse
Definition:
When one heavenly body
such as moon moves into
shadow of another heavenly
body is called eclipse.

When total or partial
obscussing of the celestial
body by another takes place
It is eclipse.

"Difference b/w Solar & lunar eclipse"

Solar eclipse

1. When moon comes between Sun & earth, Solar eclipse occurs
2. It occurs once in 18 months.
3. It occurs during day
4. It has 3 types → Partial Solar eclipse
   → Total solar eclipse
   → Annular solar eclipse
5. It lasts for about 5-7 minutes.
6. It is harmfull to see through naked eye.
7. It occurs when there's new moon

Lunar eclipse

1. When earth comes between moon and sun.
2. It occurs two times in year.
3. It occurs during night.
4. It has two types.
   • Total lunar eclipse
   • Partial lunar eclipse
5. It lasts for about an hour.
6. It is harmless to see through naked eye.
7. It occurs when there's full moon.