"General Science and Ability"

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Explain/What is CDM? write down its objectives?

Q1(a) Clean Development Mechanism:

CDM is one of three mechanisms stated in the Kyoto protocol. The mechanism allows developed countries to play their part in reducing GHG emission.

objectives of CDM

- To accomplish the overarching goal of the UNFCCC is to prevent dangerous interference with the climate system.
- To encourage sustainable development in developing nations.
- To reduce the cost of complying with the provisions of the Kyoto protocol for the developed nations.

Kyotoco protocol

Kyoto protocol is an international treaty made in 1992 to implement the objectives of the UNFccc.

- Kyoto protocol binds the countries to reduce GHG (Green house Gases) emissions.

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Reasons for criticism of the Kyoto protocol by developed countries:-

(1) Kyoto protocol has been criticized by the US for exempting developing countries like, China, India due to their huge emissions of GHG.

(2) The level of GHG emissions at the time of the treaty and now has tremendously changed, but the targets have not changed.

(3) GHG emissions knows no boundaries It is not confined to one country, but spreads in the whole environment.

(4) Kyoto Protocol has not paid much attention to other pollutants such as

(a) Sulfur dioxide
(b) Nitrogen oxide.

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Q.1(b) Difference between Sanitary and industrial Landfills.

Sanitary Landfills	Industrial Landfills
(1) Sanitary Landfills are used for disposal of waste from homes and roads	(1) Industrial Landfills are used for deposition of industrial waste.
(2) Methane is extracted	(2) Material reuseable facilities, in which reuseable items are extracted and sold.
(3) Layers of clay are used to separate the layer of waste.	(3) No such layers are used.
(4) Pipelines are constructed to extract landfill gases	(4) No. Pipelines connection are used.

write full sentences....

add more arguments in this part.

Q.2: (a) Write a short note on Artificial Intelligence (AI)?

Definition of AI:-

"It is the study of intelligent machines capable of performing the same kinds of functions that characterize human thoughts."

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Discovery of AI:-

- Artificial Intelligence term was presented by "John Mccarthy" in 1956 at the Dartmouth Conference Massachusetts Institute of Technology (MIT).

Example:

WABOT-2.

⇒ A robot developed by the "Waseda University" in Japan in the 1980s. Utilized AI programs to play keyboard instruments, read sheet music and converse rudimentarily with people.

Two Subsets under the term AI:-

1. Machine Learning
2. Deep Learning

Uses of AI:-

(a) Financial Institutions
(b) Scientists
(c) Psychologists
(d) Medical Practitioness
(e) Design engineering
(f) Security Services

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Advantages of AI:

- Smart speaker and Digital assistants.
- Facial recognition.
- Deep Learning revolutionized services e.g:- Google Translate.
- Doctors asses and diagnose patients and their health risks with the help of AI.

Disadvantages of AI:-

- Job losses:-
  Machines in the replacement of humans can lead to large-scale unemployment.
- Human Error:-
- No original creativity
- High Cost.

(4)

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Q2(b) Write short note on

Fibre Optics

Optical Fibre is the technology that is associated with the transmission of information as light pulses over a long distance along a glass tube, plastic wire or fibre.

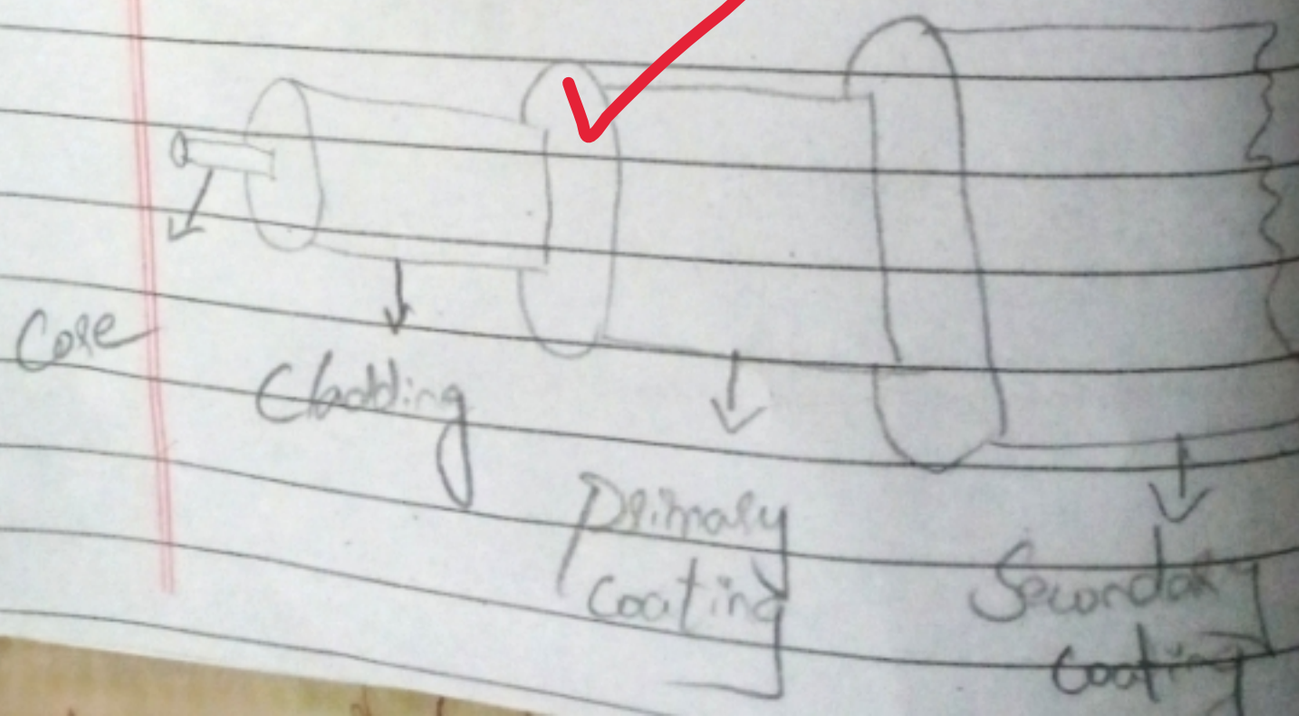
Basic Structure of optical fibre

Optical Fibre Consists of four (4) layers

1:- Core made up of glass
2:- Cladding made up of glass

Cladding:
is a reflective layer.

3:- Coating Cover as a protective layer
4:- Jacket to bundle all fibres in one cable



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Types of optical Fibre

Main types of optical fibre are as follows:

Single-mode optical Fibre

- A fibre that is designed to carry a single signal at a time.

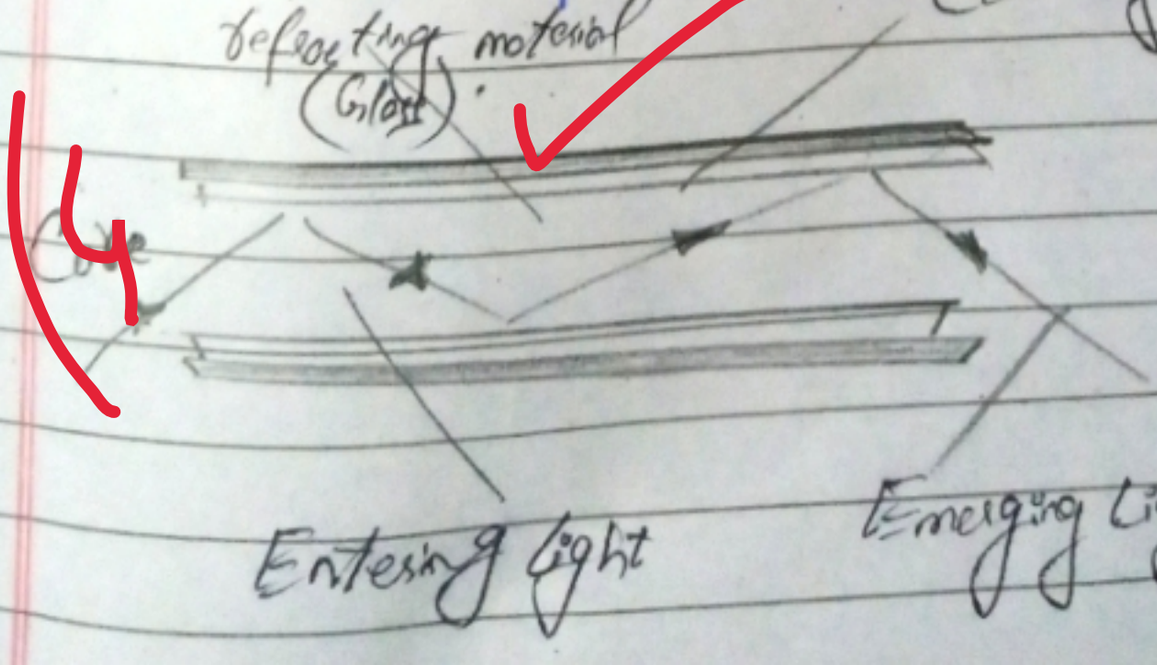
Multi-mode optical Fibre.

- A Fibre that is designed to carry more than one signal at a time.

Working of optical Fibre:

=> In Fibre-optic system, the transmitter turns information into light and sends it through optical fibres.

- As Light moves at a high speed through the core, light bounces of the cladding either by the phenomenon of **total internal reflection** or **continous refraction**.



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Q:2) Write a short note on

GPS :-

Global Positioning System

- The GPS is a satellite-based Navigation System developed and operated by the US Department of Defense
- GPS is the shortened form of NAVSTAR GPS.

NAVSTAR =>

Navigation System with Time And Ranging.

- GPS uses Constellation of 24 Satellites to determine the accurate 3 dimensional Position of the uses on the earth.

Evolution of GPS

- The GPS projected was proposed in 1973 to overcome the limitations of earlier navigation system.
- 1st satellite was launched in 1978 but it become fully operational with launching 24 satellites in 1995.
- Brad Ford Parkinson
- Roger L. Easton
- Tyan

are credited for their invention.

RUSSIAN's => Global Navigation System Satellite (GLONASS)

EUROPEAN's => Galileo positioning system

INDIA's => Indian Regional Navigation Satellite System.

CHINA's => Compass navigation system

But these systems are suffered from incomplete coverage of the globe and

Components of GPS :-

(I) Space Segment :-

- GPS Satellite Constellation composed of 24 operational Satellites in space

(II) Control Segment :-

- The control segment comprises of 5 ground station located on equator
- This information is sent back to the Satellites using ground antennas.

(III) Uses Segment :-

- The uses segment consists of : all-earth based GPS receivers.
- Totally uses community both civilian and military

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3. (a) What is Tsunami? How the tsunami generated and what are their characteristics?

Tsunami :-

Tsunami is a Japanese word from a double root.

tsu ⇒ harbor,

nami ⇒ wave.

Tsunamis are the ocean waves triggered by

(a) Large Earthquake occurs near or under the ocean -

(b) Volcanic Eruption

(c) Submarine Landslides -

Tsunami waves are unlike typical ocean waves generated by winds and storms. Often the term, "seismic or tidal sea wave" is used to describe the same phenomenon.

tion

Generated of Tsunamis :-

Tsunami can be generated by a giant meteor impact with the ocean.

These destructive surges of water are caused mostly by underwater earthquakes.

These underwater earthquakes, landslides or volcanic eruption can generate a tsunami by creating a sufficient force and violent movement of the earth.

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- This movement then causes a substantial and sudden displacement of a massive amount of water.

Characteristics of Tsunami :-

- A Tsunami is one of the most powerful and destructive natural forces.
- It is a series of waves caused by a large and sudden displacement of the ocean.
- Tsunamis radiate outward in all directions from the disturbance and can move across entire ocean basins.
- Tsunami are characterized by devastating waves that can cause widespread destruction and loss of life in coastal areas.

overall good answers!!

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attempt and upload a single qs at a time. work on the ppointed mistakes and then attempt the next qs.

(b) What is an Earthquake? Discuss Richter Scale in the context. What was the intensity of earthquake in Pak dated 26-oct-2015; where was the Locus?

Earthquake:-

Earthquake is defined as:
"Shaking and vibration at the surface of the earth resulting from underground movement along a **Fault** Plane or from volcanic activity".

- An **Earthquake** is the result of a sudden release of energy in the Earth's crust that creates **Seismic waves.**
- Earth's crust is in constant motion because of tectonic forces.

Focus:-

"The actual place underground where the rocks break producing vibration is called the Focus".

Epicenter:-

The place on the surface directly above the focus is called the Epicenter.

Magnitude of an Earthquake:

Magnitude measures of energy released during earthquake
There are several different ways to measure magnitude.

- Most common magnitude measures is **Richter magnitude** named for the renowned seismologist, **Charles Richter**

Richter Scale:

- Minor Earthquake => 4
- Moderate Earthquake => 5
- Strong Earthquake => 6
- Major Earthquake => 7
- Great Earthquake => 8.

Intensity of an Earthquake:

The intensity of an earthquake is measured by **Modified Mercal: Scale.**

- It measures the energy released during the earthquakes.
- The intensity scale takes into account the visible damage caused by the event

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General Knowledge

Founders of Various Scientific Field

1	Charles Darwin	Evolution
2	Gregor Mendel	Genetics
3	Hippocrates	Medicines
4	Galileo Galilei	Modern Science
5	John Dalton	Modern Atomic Theory

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General Science

important MCQs

- The element required for solar energy Conversion is **Silicon**.
- 1 metric ton is equal to **1000 kg**
- The substances human body produce to fight against disease germs are called **Antibodies**.
- Vitamin 'E' is present in **Wheat**.
- **Charles Louis Alphonse Laveran** discovered the Malaria Parasite
- **Joseph Lister** discovered antiseptic Surgery.
- Edward Teller invented the **hydrogen bomb**.
- Urine of a diabetes patient contains more than average quality of **Sugar**.
- A form of heart diseases in which blood supply to the heart is inadequate is known as **Angina**.
- Study of fingerprints is called **Dactylography**.

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- Total volume of blood in a normal human being is 5-6 litres.
- A colour television set makes colours by mixing light of Blue, green and Red colours.
- Wood is the least conductor of electricity.
- The Red colour of the blood is due to the presence of a pigment known as Haemoglobin.
- Lachrymal glands Secretes tears.
- Tungsten metal has the highligt/highest melting points
- Trachoma is a disease of Eye.
- Compressed Natural Gas (GNG) has the same chemical compaition as that of Sui Gas.
- An ordinary mobile phone Communication/Communicates by using Radio waves.
- An example of a heredity disease is Haemophilia.

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- Black is not a primary colour.
- Sound travel fastest through Steel.
- Acid rain is caused by pollution in environment by Nitrous oxide and Sulphur dioxide.
- Arthritis name is given to inflaction of one or more joints.
- The most malleable metal is Gold.
- The drug - Caffein, tannin and nicotine are Alkaloids.
- Sulphur is used in beauty Parlours for hair setting.
- Radium is obtained from Uranium.
- Red Light is used in traffic Signal because it has the longest wavelength and can be easily noticed from a long distance.
- Violent winds and rain are called Cyclones.
- Bronze is an alloy of Copper and Tin
- Normal heartbeat is 72 times in a minute.

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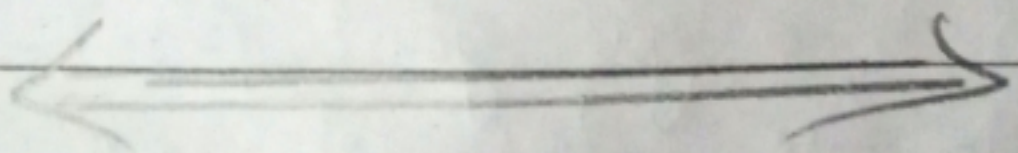
- The term 'Bore' signifies to drill a well.
- Erosion is the process by which the surface of the earth is worn away.
- Skin is the largest organ of human body.
- Euclid revolutionized Geometry.
- Ornithology is the study of Birds.
- Acoustics is the science of Sound.
- The art of breeding Silkworm and production of Silk is called Sericulture.



Jupitar Planet :-

Jupitar is the 5th planet from the Sun.

Largest planet in the solar system

Saturn Planet:-

- Saturn is the 6th planet from the Sun.
- It is the 2nd-Largest planet in the Solar System.
- Saturn orbits at a distance of about 886 mm (1.4 billion km) from the Sun.
- Saturn takes about 10.7 hours (no one knows precisely) to rotate on its axis once - a "Saturn day" - and
- 29 Earth Years to orbit the Sun
- Satarn is a gas giant planet and therefore does not have a solid surface like Earth's

- Saturn's atmosphere is made up mostly of hydrogen (H_2) and helium (He).
- Saturn has 53 known moons with an additional 29 moons awaiting confirmation of their discovery
- Saturn has the most spectacular ring system with the 7 rings, several gaps and division b/w them

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URANUS Planet:,

- Uranus is the 7th planet from the Sun,
- It has the 3rd largest diameter in our Solar System.
- It was the 1st planet found with the aid of a telescope.
- Uranus was discovered in 1781 by "Astronomer William Herschel"
- Uranus is about 4 times wider than Earth.
- Uranus orbits at a distance of about 1.8 billion miles (2.9 billion km) from the Sun.
- Uranus takes about 17 hours to rotate once (a Uranian day) and about 84 Earth Years to complete an orbit of the Sun (a Uranian Year)
- Uranus is an ice giant.
- Most of its mass is a hot, dense, fluid of "icy" materials — water (i) Methane ⇒ above a small (ii) Ammonia rocky core.

Solar Eclipse	Lunar Eclipse
(1) When the moon comes between the Sun and Earth, the event calls Solar eclipse	(1) When the Earth comes in between moon and sun the event calls Lunar eclipse
(2) The position needs to be like Sun-moon-Earth.	(2) The position needs to be like Sun-Earth-moon
(3) It occurs every 18 months.	(3) It has course twice each year.
(4) It occurs and stay for 5 to 7 minutes.	(4) It can stay even for an hour.

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Venus

(1) Venus is often called Earth's twin because they are **similar size** and **structure**.

(2) Spinning in the opposite direction to most planet

(3) Venus is **hottest** planet

(4) Brightness object in the sky.

(5) Venus is the **2nd** closest planet to the sun.

(6) Surface tempeture on Venus are about **900°F**

(7) Venus has **90 times** the atmospheric pressure of Earth

Mercury

(1) The **smallest planet** in our solar system.

(2) It is only slightly larger than Earth's moon

nearest the sun.

(3) Mercury's elliptical. egg shaped

(4) Mercury is the planet that orbits the **closest to the sun**.

(5) Mercury is the **Fastest** planet speed **29miles** (47 km) per second.

(6) Shortest distance to travel around the sun (short year **88 Years**)

MCQ's Based Notes

- Global warming is increased due to access of carbon dioxide.
- Kidney stones is caused due to Calcium oxalate.
- Diphtheria is a disease of Throat.
- Component of diet that prevent Constipation in Fibre.
- Etomology is a science of Insects.
- Uncharged particle in an atom is Neutron.
- Hemodialysis clears the Blood.
- SunLight is a good source of Vitamin D.
- A Hottest and Brightest Planet of Solar System is Venus.
- Blood is composed of Plasma and Blood cells.
- Blood is a type of Connective Tissues.
- Life span of Red Blood cell 120 days.
- The age of Solar System is 4.5 billion years

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- Blood Vessels that carries the blood away from heart into Arteries.
- Paris is the capital of France situated on the bank of Seine.
- Budapest is the capital of Hungary situated on the bank of Danube.
- Agra is very famous city of India due to Taj Mahal, It is situated in the bank of rives Yamuna.
- Oxus River is flowing between Afghanisten and Tajikistan.
- Yangtze Kiang river is located in China.
- Yangtze Kiang is the largest river of Asia.
- Mackenzie is the name of rivers located in Canada.
- Orange is the name of river of South Africa.
- Murray is the name of the river of Australia.
- River Nile originates from Lake Victoria

- **Liver** is the largest gland in the human body.
- **Stapes** is the smallest bone in the human body.
- **Human Cell** contains **46 Chromosomes**
- **Luckemia** is a **Blood disease**
- Idea of **Blood bank** was pioneered by **"Charles Richard Drew"**.
- **Trachoma** is a disease of **Eye**.
- **ABO Blood Group** system was discovered by **Karl Landsteiner**.

Bacteria Diseases	Diseases caused Virus
Anthrax Diseases affected Lungs, Skin	**RABIES** ⇒ Brain, Spinal cord.
Tetanus Diseases affected Muscles (Cramp) or spasms	**RNA** ⇒ Paralysis
Tuberculosis (TB) affected the lungs, brain, spine.	

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Bacteria Diseases Caused

Gonorrhea Disease	Affected Reproductive tract and Urinary tract.
Pneumonia Disease	Affected Lungs mostly alveoli.
Cholera Disease	Affected Small intestine
Diphtheria Disease	Affected Respiratory tract. Nose, Throat.