

Q. # 2

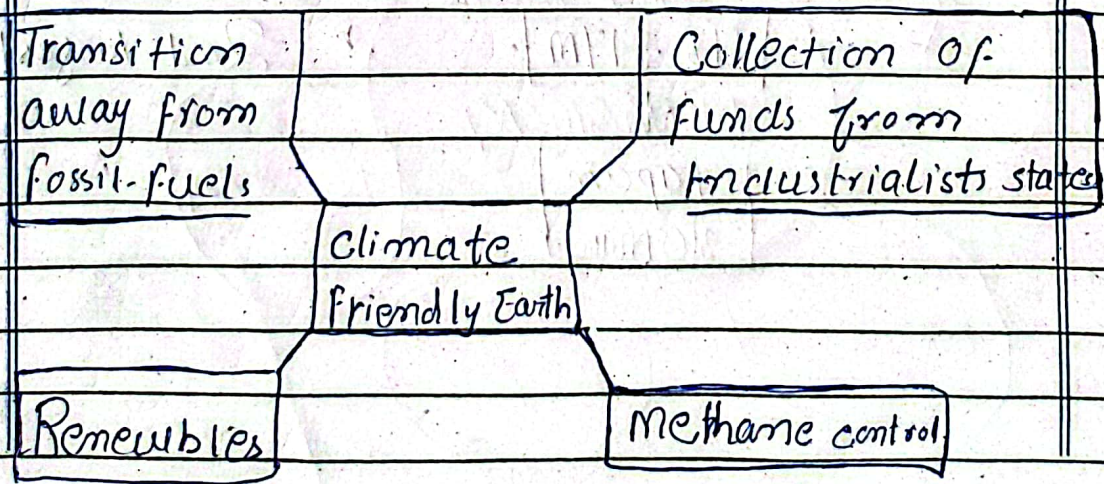
a. Key features of COP-28 held in UAE - in context of loss and Damage fund and some financial issues of developing countries.

Ans

1. Introduction

Conference of Parties-28 held in UAE served as a formal place to determine nationally determined contribution to reduce emission of toxic gases which pollute environment. Its key features are including, formalizing loss and damage fund by collecting funds from developed states to use them for rehabilitation of losses made by climate catastrophe in vulnerable countries.

2. Key Features of COP-28.



3. Loss and Damage Fund

Under loss and damage fund rich countries were compelled to contribute financially for the losses bear by prey countries like Pakistan. It's vulnerable state to climate disasters whereas its contribution of CO₂ is 0.29%. Hence to compensate the losses this fund was formalized with its administrative body.

a. Pledges of Financial Contribution under COP28:

UAE & Germany
\$100 million

Biggest
Emitters
of
GHGs

EU members
\$125 million

3rd largest

UK \$50M

US \$17M

2nd largest

Japan
\$10 Million

4. Financial Issues of Developing Countries:

- a. Global warming could cost poor countries Trillions of dollar. Due to heavy losses caused by weather variation. For instance, the recent floods 2022 in Pakistan have caused \$3 trillion by devastating infrastructure resulted from heavy rain.

5. Conclusion

To sum it all up, it is pertinent to state that global warming has gathered nearly 190+ states in UAE to sort this grave issue out. In COP-28, countries have formalized loss and damage fund which was proposed in COP-27 last year in Egypt. Developing countries are facing financial challenges due to natural disasters such as floods, drought and heatwaves. Hence, to compensate their losses COP-28 played constructive role in collecting funds.

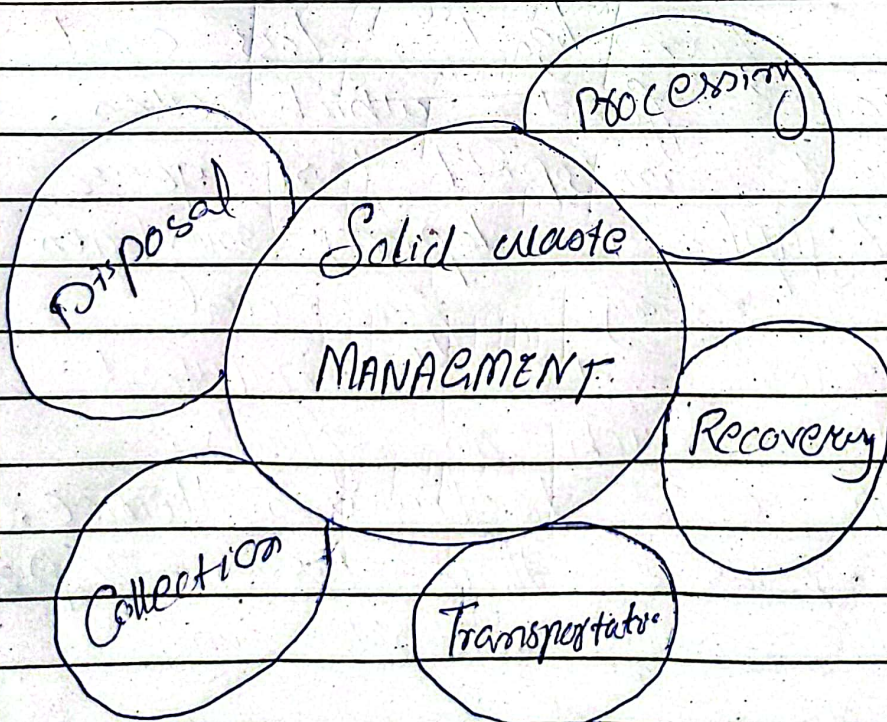
b.) What is Solid waste management. Discuss different methods

1. Solid Waste Management:

Solid waste management refers to the management of solid waste materials.

It is a process of treating waste in proper way by recycling the waste, reducing the use of waste, landfilling and conservation waste into productive things.

For example, Starbucks brand pledge of reducing use of straws to eliminate plastic globally etc.



2. Methods of Solid Waste Management:

It can be done in a number of ways. However, some effective methods of solid waste management are discussed below:

3. Recycling:

It involves collecting of solid waste and processing it in such a way that it can be used again. For instance, making vase out of plastic bottles.

4. Reducing Source of Waste:

Another effective method in reduction of the source of solid waste. This strategy is very useful. The world has been working on it. For example, plastic going-out

campaign which hampered the use of shoppers etc.

Landfilling:

When waste can not be recycled or reduce, the best method for solid waste management is disposition of it in landfills. In present time, modern landfills are designed to reduce impacts (harmful) of solid waste volume.

6. Conservation of Waste-to Energy:

Last but not the least, one of the efficient methods of solid waste is turning it into energy. It can be done by the process of incineration. It helps to generate electricity or heat out of the solid waste. In many cities this method is proved helpful in Pakistan. For example, in Sukkur, Sindh thousands of the tonnes of waste has been gathered in ripe areas to conserve it. Therefore, it can be concluded that solid waste management can be done in various ways.

c) Balanced Diet Note

1. Describing Balance diet

Balance diet refers to the fulfilment of all nutritional needs required by human body. It comprises of essential food components which protect human body against many disease such as malnutrition etc.

2. Importance of Balance Diet

Balance diet is very crucial for humans to work and live healthy life. In order to maintain good health and balance diet is prerequisite.

'Let thy food be thy medicine.'

3. Components of Balance Diet

Group I: Dairy products (milk, cheese)

Group II: Grains (rice, bread)

Group III: proteins (beans, eggs)

Group IV: vegetables/fruits

Group V: Oils / Fats

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4. Functions of Balance Diet

- a. Boosts Immune system
- b. protects against diseases
- c. Helps to maintain body temperature
- d. Helps in building tissues and muscles.
- e. Gives energy to work
- f. Regulate growth of body
- g. provides all nutrients
- h. Maintains healthy living

5. Disadvantages of Imbalanced Diet

- a. Deficiency of vitamins lead to acute disease like Scurvy and Beri Beri
- b. Every unbalanced diet results in poor growth and health.

d. Discuss any 3 renewable energy resources under CPEC.

1. Introduction:

The main three renewable energy resources under CPEC are including Quid-Azam Solar Park, Hydro China Dawood Wind Farm, and Karot hydro power plant. These projects aim at providing environment free electricity (clean) and cheaper to Pakistan under CPEC projects.

2. Sources of Renewable Energy:

A General Overview:

Renewable energy sources are refers to the sources that can be driven from natural sources that can be replenished at a higher rate for human benefit.

For example:

Sun Energy
Wind Energy
Geothermal etc.

a. Renewable Sources Under CPEC:

CPEC is a mega project

signed between China and Pakistan in 2013. Under this project China plans to invest in different sectors in Pakistan including rail infrastructure, transportation and energy sector.

Under CPEC following are major energy projects falls under renewable:

I. Hydro Power Plants

Under CPEC hydro power plants are key to mention.

For example, **Karot project** located on the Jhelum River.

The instalment capacity of Karot hydro project is **720 MW**.

It is designed to generate some 3 billion kilowatt-hours of clean electricity annually.

II. Quid-Azam Solar Park.

Solar energy sources is another project under CPEC which is renewable. Located in Bahawalpur its installation capacity is 400 to 600 MW of solar energy.

It will light up Pakistan future by displacing thousands of tonnes of coal burning

III. Wind Farms in Chaco That's

Hydro-China, Dawood wind farm is also renewable energy project under CPEC. It aims to provide nearly 50mw of electricity to Pakistan through wind turbines installed under the auspicious of China-PRT.

Reportedly it is sufficient to provide electricity to some 100,000 households in the local area.

3. Conclusion

Promoting Green and clean Pakistan is an agenda of our policy. In this regard CPEC has aided us by assisting in developing green energy infrastructure.

Renewable sources of energy under CPEC are ranging from solar parks to wind turbines in Pakistan.

It will not only give Pakistan clean electricity but also promote green infrastructure in the country.

Q.# 34

Q) How does earthquakes are generated? Distinguish with Tsunami

1. Generation of Earthquakes

Earthquake forms when tectonic plates move slowly. Due to the sudden movement along faults within the earth, the heated magma in lower mantle shows movement it release energy and heat up magmatic current which results in earthquake.

a. Movement of Fault lines

A fault is a fracture between two blocks of rocks. These faults allow the blocks to move relative to each other. This movement generate earthquake

2. Understanding Tsunami

Tsunami is a series of waves in a water body caused by the displacement of water

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Earthquake Vs Tsunami Generation

Tsunami is occurred due to the sudden displacements of seafloor, whereas earthquakes occur due to the movements of tectonic plates in the earth crust.

Tsunami occurs in water

Earthquake occurs on land

The former forms waves of water

The latter shakes the earth.

b. Coriolis force? How Hurricanes are generated?

1. Coriolis Science

In physics Coriolis is a force that acts on objects in motion within a frame of reference that rotates with respect to inertial frame.

- In its simpler definition Coriolis force is a force caused by the earth's rotation.

- It is responsible for deflecting winds towards northern hemisphere in the right and southern hemisphere in the left.

When the wind velocity is high deflection is more.

2. Generation of Hurricanes

Hurricanes are tropical cyclones with strong wind and heavy rainfall. They form over warm ocean.

waters when the conditions are right.

- Warm moist air rises from surface of ocean, it creates pressure.
- As more warm air rises it creates spinning motion due to the rotation of earth and the Coriolis force Coriolis.

3. Relation between Coriolis Force and Hurricane

- The Coriolis forces play a key role in formation and structure of hurricanes.
- These forces cause moving objects such as air and water to curve due to Earth's rotation.
- This force helps to give hurricanes spinning motion.

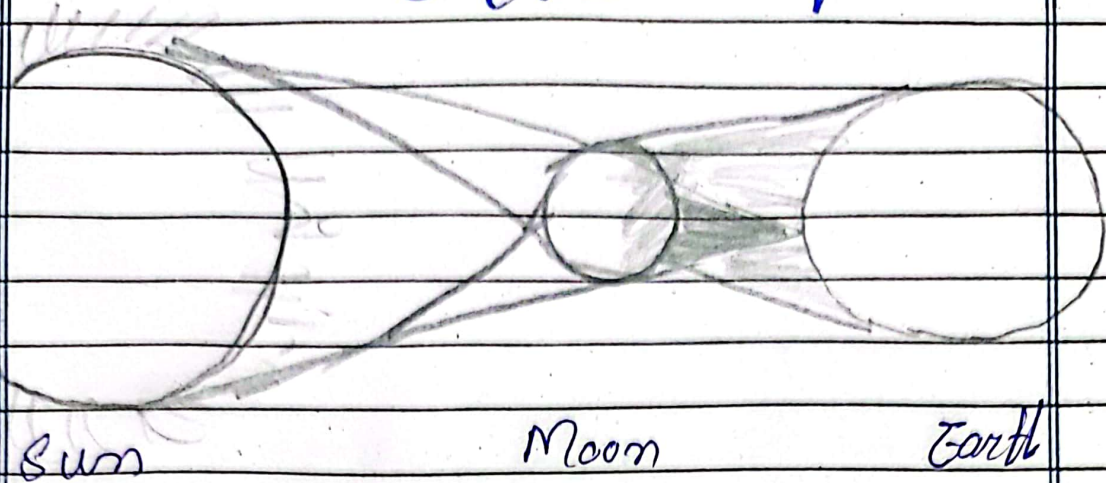
c) Distinguish between solar and lunar eclipses

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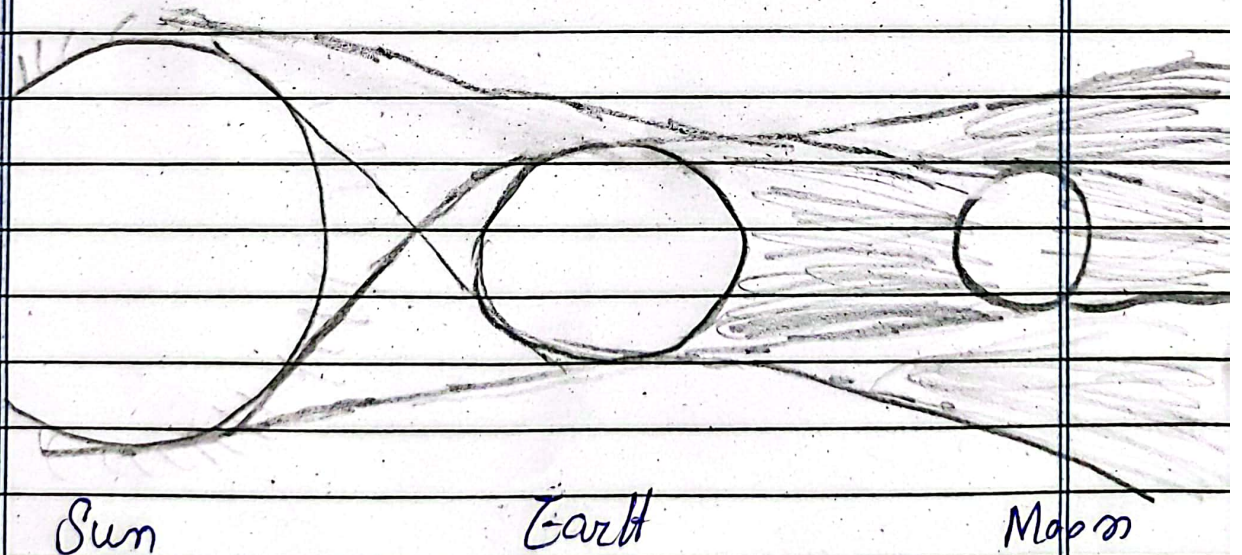
Key Characteristics of: Solar Eclipse Lunar Eclipse

- | | |
|--|--|
| • In solar eclipse the moon comes between the Earth and the sun. | • In lunar eclipse the earth comes between the moon and the sun. |
| • Occurs once in 18 months | • Occurs twice a year |
| • Lasts about 5-7 minutes | • Lasts for an hour |
| • Occurs during day | • Occurs during night |
| • Happens in new moon | • Happens during full moon |
| • Risky to see | • Harmless to bare eye |

Solar Eclipse



Lunar Eclipse



Q) What is doping in semi-conductors
Discuss different types of
Ceramics

1 Explaining Doping

Doping in semi-conductors refers to the process of adding impurities to modify their electrical properties.

a. Reason behind Doping semiconductors:

By adding specific atoms to the semiconductors such as ~~extra electrons~~ phosphorus and boron scientist aim at either introducing extra electrons or create holes to control its conductivity.

Other reasons are:

Creation of various devices such as diodes and transistors etc.

b. Types of Doping

- 1) n-type doping
- 2) p-type doping

2 Types of Ceramics

following are various types of ceramics

a. Stoneware:

ceramic material is fired at a higher temperature. It results in a denser and more durable material.

b. Earthenware:

It is fired at low temperature. It is used for dishes, pottery etc..

c. Porcelain:

It is known for its translucent appearance. It is made of clay and fired at high degree.

d. Refractory:

These ceramics are used in applications such as kiln lining, aerospace material etc. It withstand high temperature

e. Technical:

These ceramics are used in ~~me~~ electronics and automotive. They have mechanical, thermal and electrical properties.

Q# 6

Five years ago age of father was thrice the age of son, if son is 30 years old now what is current age of father

a) Ans

$$F, x \times 3 - 5$$

$$\text{So, } x = 30$$

Son five years ago was
25

~~$$25 + 30$$~~

~~$$75 + 80$$~~

The present age of father is 80