Register Number: 15181021145

Subject : Renewable Energy systems

Subject code : U15EE1006R

SET-1

Date : 19/08/2021.

PART-A

1) => Sasan Ultra Mega power plant - Madhya pradesh.
=) Mundra ultra Mega power plant - Gujarat
=) Tirada Thermal power plant - Maharashtra.
=> Vindhyachal Thermal Power Station - Madhya Pradesh

2) Renewable Energy:
=) Solar Energy
=) Geothermal energy
=) wind energy
=) Biomass
=) Hydropower.

5) Irradiation - The sum of the energy falling on a surface in a given time-period, originating from the Sun, measured in MJ/m2.

Irradiance - The power (or) instantaneous rate of energy received by a surface, originating from the Sun, measured in W/m2.

6) => Flate plate solar collector.
=> Thermodynamic panels.
=> Evacuated tube solar collectors.
=> Domestic solar Hot water system.
=> Solar thermal boil collectors.

7) Different forms of energy:
=> Chemical
=> electrical
=> radiant
=> mechanical
=> thermal
=> nuclear

8) Products of Crude oil:
=> Diesel
=> Petroleum
=> kerosene
=> Biofuels
=> Liquefied Petroleum Gas (LPG)

9) Advantages:
=> Maintaince requirements are lower
=> It saves Money.
=> It has numerous health & environment benefits
=> lower reliance on foreign energy sources.

Limitations:
=> Stoarge capabilities is more

=) It has Geographic limitations
=) Higher upfront cost.

10) Compounds present in the coal:

=) Carbon
=) hydrogen
=) Oxygen
=) nitrogen
=) Sulfur
=) Trace amounts of a variety of other elements.

11) Advantage of Concentrating Collectors:

=) NO fuel cost: Solar thermal concentrators does not require any fuel like most of the sources of renewable energy.
=) predictable power: This can generate power 24 hours a day.
=) NO pollution & global warming: It does not pollute the environment.

12) Diffuse radiation is solar radiation reaching earth's surface after having been scattered from the direct solar beam by molecules and suspensoids in the atmosphere.

3) Some factors that affect intensity are the distance away from the epicenter, the depth of the earthquake, the population density of the area affected by the earthquake, the local geology of the area, the type of building construction in the area and the duration of the shaking.

4) Classification of Energy Sources Based on origin:

=) Solar energy

=) Hydro energy

=) Biomass

=) Tidal energy

=) Nuclear energy.

1)

PART-B.

Renewable Resources	Non-Renewable Resources
=> It cannot be depleted over time	It can be depleted over time.
=> It includes sunlight, water, wind, geothermal sources.	It includes fossil fuels such as coal and petroleum.
=> It have low carbon emissions & footprint.	It have higher carbon emissions & footprint.
=> Requires a large land especially for wind farms & solar farms	Comparatively lower area requirements
=> Infrastructure for harvesting is prohibitively expensive & not easily accessible in most countries.	Cost-effective & accessible infrastructure is available for non-renewable energy.

10) Step-1: Evaporation & Transpiration:

The energy of the sun heats the lakes, rivers, oceans, swamps & other bodies of water which subsequently raise the temperature of the water present in them. At the same time plants & trees often lose water to the atmosphere in the form of vapours which rises in the sky.

Step-2: condensation

The colder weather makes them cool down as the vapours rise high & transform them back into liquid - condensation. Wind & air currents carry the moisture around, which contributes to cloud formation.

Step-3: precipitation:

wind motions cause particles to collide with the clouds. Depending on the weather conditions, it the form of rain, hail, snow (or) sleet. to produce water.

Step-4: Run off and infiltration.

The precipitation runs down into seas rivers and soil (or) is absorbed into the ground.

(4) c) solar radiation is absorbed directly by the liquid without the need to heat any other structures within the collectors.

=) Lower heat losses are possible since energy is absorbed directly by the overlying fluid and the flow pattern can be arranged so that the hottest spot is in the center of the collectors away from all edges.

-) Lower cost may be possible since no metal is required in construction & only glass & plastic need be used in addition to the frame and insulation.

=) More configurational arrangements are possible with the absence of metal absorbers.