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Q NO:1

ANS: **ENERGY RESOURCES**

They are define in the energy resources in the following due to the nine major areas of energy resources into two categories . nonrenewable and renewable.

NONRENEWABLE ENERGY RESOURCES: *Like coal, nuclear ,oil, and natural gas , are available in limited supplies. This is usually due to long time to make full or complete again.*

RENEWABLE ENERGY RESOURCES: *Renewable resources due to the replenished naturally and over relatively short periods of time. They are five major renewable energy resources are solar, wind, water , biomass, and geothermal.*

WIND ENERGY

Wind is the from solar energy that are caused by the uneven heating of the atmosphere by the sun, irregularities of the earths surface , and rotation of the earth . Wind flow is modified by the earth terrain.

TERRIAN: *They are defined as the physical specific feature of an area land.*

EXAMPLE: *Terrain is a rocky and jagged coastline.*

WIND POWER: *The terms “wind energy “or “wind power “ describe the process by which the wind is used to generate mechanical power or electricity .*

WIND TURBINS : *They are wind turbines convert to the kinetic energy in the wind mechanical power.*

ADVANTAGES AND DISADVANTAGES

- ❖ *The advantages of the wind energy are more apparent than the disadvantages.*
- ❖ *Wind turbines pose a threat a wildlife....*
- ❖ *Wind is the domestic source of energy.*
- ❖ *Wind energy is the source of clean, non polluting, electricity.*
- ❖ *It would take a forest of 90 million to 175 million trees to provide the same air quality.*
- ❖ *Unlike conventional power plants , wind plants emits no air pollutants or greenhouse gases.*
- ❖ *Wind turbines can be built on existing farms or ranches.*
- ❖

- ❖ *Wind turbines create visual pollution.*

Q NO : 2

ANS : **SOLAR ENERGY**

They are define to the solar energy is the technology use to harness the sun ,s energy to make its useable and the many are familiar with so called photovoltaic cell , or solar panels, found or things like spacecraft , rooftops, and handheld calculators .The cell are made of semiconductor materials like those found in computer chips.

Solar energy is one of the fastest growing and environmentally sustainable trends in renewable energy efficient homes and businesses know that solar energy is a smart investment that will benefit them in the long run. The aims of projects is the create 2000 megawatts of solar generation capacity by the year 2020.

PITFALLS

Solar energy doesn't work at night without a storage device such as a battery , and cloudy weather can make the technology unreliable during the day .solar technology are very expensive and require a lot of land area to collect the sun energy at rates useful to lot of people .solar electricity can often pay for itself in five to ten years.

ADVANTAGES AND DISADVANTAGES OF THE SOLAR CELL

- ❖ Moderate net energy yield .
- ❖ *Little or no direct emissions of co2 and other air pollutants.*
- ❖ *Easy to install , move around and expand as needed.*
- ❖ *Competitive cost for newer cells*

DISADVANTAGES

- ❖ *Need access to sun*
- ❖ *Need electricity system or backup.*
- ❖ *High cost for older system but decreasing rapidly.*
- ❖ *Solar cell power plants could disrupt desert ecosystem.*

SOLAR COOKING

ADVANTAGES

WATER AND MILK PASTERUIZER: free up bacteria .

NO OVERCOOK: There is no fear scorching the food.

DISADVANTAGES

CILMATE DEPENDENCE: A solar cooker works well only on a clear sunny day .

HIGH COOKIN TIME:As compared to conventional cooking.

QNO: 5

ANS : (A) BIOMASS ENERGY

The defined to biomass energy in the following is organic material that comes from plants and animals due to the renewable source of energy. America is the largest wood pellet exporter in the world and the USA in 182 pellet plants has been registered.

MOST of the America wood pellets has been shipped to European countries. European power plants used for electricity and power generation .

When biomass is burned , the chemical energy is biomass is released as heat. biomass can be burned directly or converted to liquid biofuels or biogas that can be burned as fuels .

EXAMPLE

Biomass include wood, straw, poultry litter and and energy crops such as willow and poplar grown on short rotation coppice and miscanthus.

Biomass and their use and energy for animals can be manure and human sewage.

(B)HYDROPOWER ENERGY

The united state is the fourth largest producer of hydroelectricity in the world after CHANIA Canada , and Brazil. The grand coulee dam is the 5th largest hydroelectricity power station in the world. Hydropower energy is power derived from the energy of falling water or fast running water, which may be harnessed for useful purposes.

A conventional dammed – hydro facility (HYDROELECTRIC DAM) is the most common type of hydroelectric power generation.

EXAMPLE

Hydroelectric power dam is the Kielder water reservoir, located in Northumberland , operated by RWE Npower and is the largest system in England.

QNO :3

ANS :

EUTROPHICATION

They are gradual increase in the concentration of phosphorus, nitrogen , and other plant nutrients in an aging aquatic ecosystem such as a lake . the productivity or fertility of such an ecosystem naturally increase as the amount of organic material that can be broken down into nutrients increase .

This material enters the ecosystem primarily by runoff from land that carries debris and products of the reproduction and death of terrestrial organisms. Eutrophic waters are often murky and may support fewer large animals, such as fish and birds, than non-eutrophic waters.

EXAMPLE

ALGAL BLOOM “ or great increase of phytoplankton in a sandy body as a response to increase levels of nutrients.

TYPES OF EUTROPHICATION

There are two types of eutrophication i.e

1) NATURAL EUTROPHICATION:

Over centuries, gradual build up of nutrients, sediments and organic material begin to fill many lake basins. As the lakes become more eutrophic, they are able to support more living organisms, including damaging algae, as a result of higher nutrient levels. At the same time, their littoral area increases as a result of sedimentary buildup. Eventually, this process not only affects the water quality but allows colonization by terrestrial vegetation in the expanding shadows. The length of this process depends on the characteristics of the lake basin, the watershed and the climate.

2) CULTURAL EUTROPHICATION:

The alteration of nutrient input to water basins by human activity can dramatically increase eutrophication, leading to major ecological changes in decades, rather than centuries. Cultural eutrophication is primarily associated with phosphorus, which is found in fertilizers and partially treated sewage. Phosphorus has been found to be one of the strongest stimulators of algae growth. One of the primary source of man-caused sedimentary eutrophication is soil erosion caused by the removal of trees and vegetaiaon.

QNO : 4

ANS : CAUSES OF EUTROPHICATION

Eutrophication is most often is the result of human activity . farms , golf courses , lawns and other field tend to be heavily fertilizer by people . these fertilizer are the perfect type of nutrients to feed hungry algae and plankton, and when it rains, these fertilizers run off into lakes, streams, rivers and oceans.

Concentratd animal feedind operation are also a major source of polluting nutrients.

Eutrophication can also come from natural events .if a stream , rivers or lake floods , it may wash away any excess nutrient off the land and into the water. However eutrophication is less likely to occur in areas that are not surround by fertilized lands.

The most common nutrients causing eutrophication are nitrogen and phosphorus. The main source of nitrogen pollutants is run-off from agricultural land , whereas most phosphorus pollution comes from households and industry , including phofphorus-based detergents.