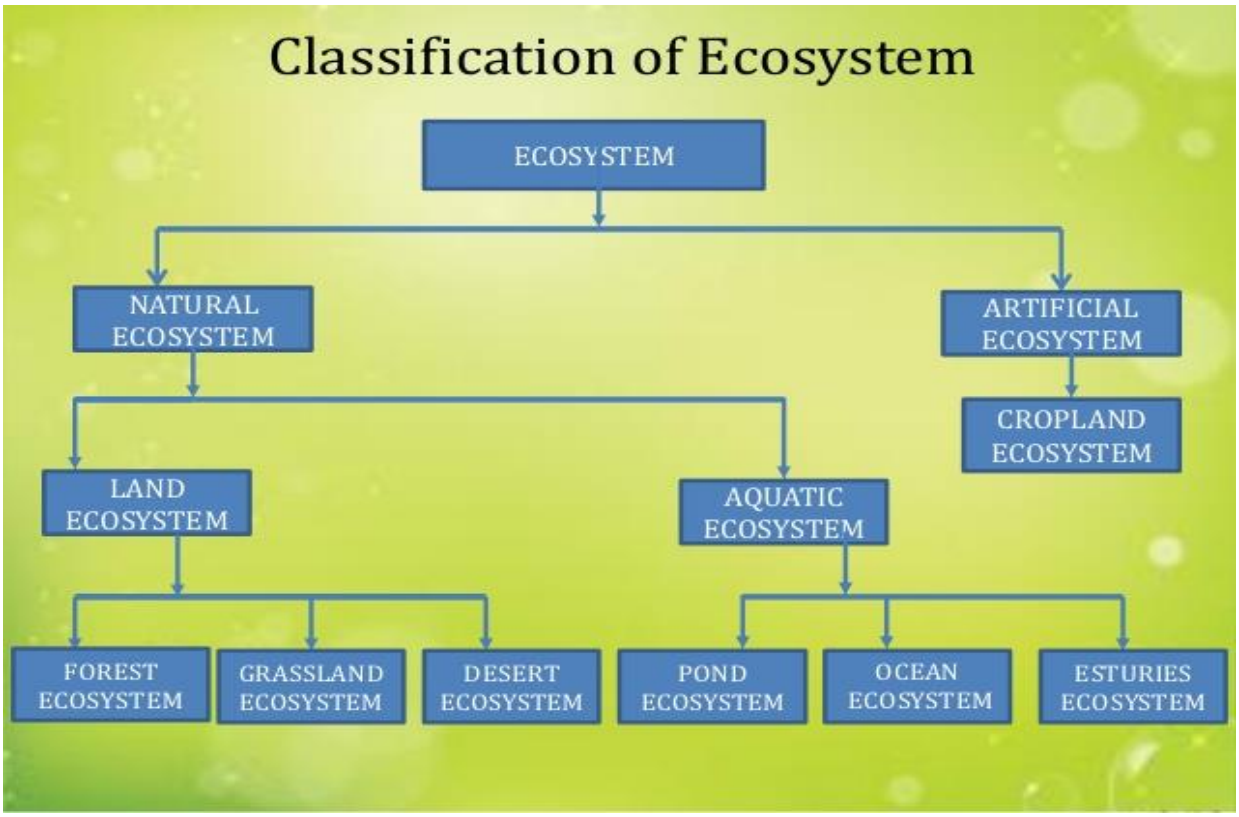
EVS

MID -I

1)What is ecosystem? Explain the classifications of ecosystem?

Ans: it is defined as a structural and functional unit of biosphere consisting of community of living beings and the physical environment, both interacting and exchanging materials between them. An ecosystem is a complex set of relationship among the living resources, habitats, and residents of an area. It includes-plants, trees, animals, fish, bird, micro-organisms water, soils and people.

When an ecosystem is healthy it means that all the elements live in balance and are capable of reproducing themselves. Ecosystems can be as small as a single tree or as large as entire forest.



Natural Ecosystem – These are ecosystems which occur naturally and can survive without any intervention from human beings**.** Examples of natural ecosystems are forests, mountains, rivers etc.

Land Ecosystem- A land, or terrestrial, ecosystem is all the living organisms and their physical environment on a particular piece of land**.** Terrestrial ecosystems may interact and overlap with marine (salt-water) and limnological (fresh-water) ecosystems.

Forest Ecosystem- A natural woodland area making it a suitable place for the survival of biotic and abiotic components, is usually termed as a forest ecosystem. A forest ecosystem consists of various plants, animals, and other micro-organisms, making it a natural habitat for them.

Grass land Ecosystem - s Grasslands cover areas where rainfall is usually low and/or the soil depth and quality is poor. The low rainfall prevents the growth of a large number of trees and shrubs, but is sufficient to support the growth of grass cover during the monsoon.

Desert Ecosystem- Deserts and semiarid areas are located in Western India and the Deccan Plateau. The climate in these vast tracts is extremely dry. There are also cold deserts such as in Ladakh, which are located in the high plateaus of the Himalayas. The most typical desert landscape that is seen in Rajasthan is in the Thar Desert. This has sand dunes

Aquatic ecosystem- An aquatic ecosystem includes a group of interacting organisms which are dependent on one another and their water environment for nutrients and shelter. Examples of aquatic ecosystem include oceans, lakes and rivers**.**

Pond ecosystem- The pond is the simplest aquatic ecosystem to observe.

Ocean Ecosystem – The largest of earths aquatic ecosystem and exist in waters that have a high salt content. These systems contrast with fresh water ecosystem, which have a lower salt content.

Estuaries Ecosystem-An estuary is a partially enclosed body of coastal water where fresh water from rivers and streams mixes with salt water from the oceans. it is the part in which the water courses mix into the ocean circulation

Artificial Ecosystem – When human beings modify the already existing ecosystem to meet their purpose or create an ecosystem of their own that mimics the natural condition, those are called artificial ecosystems.

Crop land Ecosystem- A crop land ecosystem will have a major crop cultivated in a given area. It shows that the diversity in that particular area will be least. Whereas it is the opposite when forest ecosystem is considered. This is manmade ecosystem. Man has been doing his best in modifying the croplands to get maximum benefit out of them.

2)What is an air pollution? Write the control measures for air pollution?

Ans: Air pollution:

Air pollution occurs due to the presence of un-desirable solid or gaseous particles in the air in quantities that are harmful to human health and the environment. Air get polluted by natural causes such as volcanoes, which release ash, dust, sulphur and other gases or by forest fires that are occasionally naturally caused by lightning. However, unlike pollutants tend to remain in the atmosphere for a short time and do not lead to permanent atmospheric change.

Control measures for air pollution:

Air pollution can be controlled by two fundamental approaches: preventive techniques and effluent control.

One of the effective means of controlling air pollution is to have proper equipment in place. This includes devices for removal of pollutants from the flue gases though scrubbers, closed collection recovery systems through which it is possible to collect the pollutants before they escape, use of dry and wet collectors, filters, electrostatic precipitators, etc. Providing a greater height to the stacks can help in facilitating the discharge of pollutants as far away from the ground as possible. industries should be located in places so as to minimize the effects of pollution after considering the topography and the wind directions. Substitution of raw material that causes more pollution with those that cause less pollution can be done.

3)What are natural resources? Give the classification of natural resources?

Ans: Natural Resources:

Natural resources are naturally occurring materials that are useful to man or could be useful under conceivable technological, economic or social circumstances or supplies drawn from the earth, supplies such as food, building and clothing materials, fertilizers, metals, water and geothermal power. For a long time, natural resources were the domain of the natural sciences.

Classification of natural resources:

Natural resources are mainly classified into 2 different categories:

1. Renewable natural resources and
2. Non-renewable natural resources

1.Renewable natural resources are the resources that can be generated again once they are used. Some of the examples of the renewable natural resources include sunlight, water, and wood.

2.Non-renewable natural resources are the ones that exhaust after their frequent usage and sometimes it takes a really long time for them to regenerate. An example of this includes natural gas. Another example of the non-renewable natural resource is coal. Just as coal, there are many such natural resources which are limited which means that they cannot be recycled again. Most of these non-renewable natural resources cannot be recycled and hence it is important to conserve these natural resources. There are several natural resources that have a very high demand but have a lesser availability. Ex: Air, Water, Fossil Fuels.

4)What are non-renewable resources of energy and their impact on environment?

Ans: Greenhouse gas emissions

Perhaps the most well-known impact of using non-renewable energy sources is the emission of green house gas, in particular carbon dioxide and methane, which contribute to climate change.

The concerns about greenhouse gas emissions and climate change are cross-cutting. It is not just about direct impacts of rising temperatures and changing weather patterns as floods or dry seasons proliferate that impact human livelihoods.
Climate change is impacting ecosystems, diminishing their capacity to adapt to changing conditions, threatening biodiversity and the important ecosystem services our lives rely on.

Air pollution

Non-renewable energy sources are not just altering our Earth's atmosphere by increasing the amount of greenhouse gas emissions. They also emit a variety of pollutants that affect people's health and the environment.
This has profound effects on our biodiversity but also creates real risks for people, as studies have found that exposure to mercury can lead to neurological and neuro-behavioural effects in embryos and young children.
Other air pollutants emitted due to fossil fuel combustion include sulphur dioxide, nitrogen oxides and particulate matter.

Acid rain and water pollution

It is not just the air that we breathe which gets polluted. Dangerous pollutants that are emitted into the air can take a part in the water cycle. This is the case of acid rain which forms when sulphur and other chemicals are introduced into the atmosphere from industrial processes. Chemicals suspended in the air then turn the rain mildly acidic.
Both fossil fuel plants and nuclear power plants require water to run and help cool the power plant. The water they use is also needed for other purposes, such as maintaining local ecosystem functions or agriculture. When the plants release that water back into the environment, its temperature is changed and as a result its quality has been degraded.

Land pollution and waste generation

It is also important not to forget environmental impacts that come about as a result of the extraction of non-renewable resources or the disposal of the waste they generate. There is very clear evidence illustrating the impact of surface mining both in the short and long-term. For instance, huge volumes of excess rock or soil are dumped in other locations such as nearby valleys affecting those ecosystems.
When it comes to the land that is being mined, in the long term these **sites are left with poor soil quality and sometimes due to the chemicals used the lands ends up being polluted** as well as any nearby water reserves

Oil spills and other accidents

Lastly, there is something to be said about unintended consequences or rather unforeseen and accidental effects. Oil spills are extremely damaging to nearby shores and ecosystems.
Biologists were worried that a species of algae, vital to hundreds of species of animals, would be wiped off due to the oil released in the Gulf of Mexico. Similarly devastating effects on both nature and humans were seen as a result of the nuclear disaster in Chernobyl. **These were accidents which came about due to negligence, technology failure, lack of preparedness or a combination of all those.**
But the point to make is that by continuing to use non-renewable energy we acknowledge that such disasters are acceptable and even preferable to switching to low carbon and renewable energy sources.

5)What is the role of an individual in conservation of natural resources?

Ans: CONSERVATION OF NATURAL RESOURCES - ROLE OF AN INDIVIDUAL

Different natural resources like forests, water, soil, food, mineral and energy resources play a vital role in the development of a nation. While conservation efforts are underway at National as well as international level, the individual efforts for conservation of natural resources can go a long way.

I. Conserve Water

Don't keep water taps running while brushing, shaving, washing or bathing.

Check for water leaks in pipes and toilets and repair them promptly. A small pin-hole sized leak will lead to the wastage of 640 litres of water in a month.

Use drip irrigation and sprinkling irrigation to improve irrigation efficiency and reduce evaporation. Install a small system to capture rain water and collect normally wasted used water from sinks, cloth-washers, bathtubs etc. which can be used for watering the plants

Build rain water harvesting system in your house. Even the President of India is doing this.

II. Conserve energy

Turn off lights, fans and other appliances when not in use.

Obtain as much heat as possible from natural sources. Dry the clothes in sun instead of drier if it is a sunny day.

Use solar cooker for cooking your food on sunny days which will be more nutritious and will cut down on your LPG expenses.

Grow deciduous trees and climbers at proper places outside your home to cut off intense heat of summers and get a cool breeze and shade. This will cut off your electricity charges on coolers and air-conditioners.

Try riding bicycle or just walk down small distances instead of using your car or scooter.

III. Protect the soil

While constructing your house, don't uproot the trees as far as possible. Plant the disturbed areas with a fast-growing native ground cover.

Make compost from your kitchen waste and use it for your kitchen-garden or flower-pots. Do not irrigate the plants using a strong flow of water, as it would wash off the soil.

If you own agricultural fields, do not over-irrigate your fields without proper drainage to prevent water logging and salinisation.

Use mixed cropping so that some specific soil nutrients do not get depleted.

IV. Promote Sustainable Agriculture

Do not waste food. Take as much as you can eat Reduce the use of pesticides.

Fertilize your crop primarily with organic fertilizers.

Eat local and seasonal vegetables. This saves lot of energy on transport, storage and preservation. Control pests by a combination of cultivation and biological control methods.

6)Write the difference between natural and artificial ecosystem?

Ans:

BASIS OF COMPARISON	NATURAL ECOSYSTEM	ARTIFICIAL ECOSYSTEM
Meaning	Naturally occurring system developed due to the constant interaction between the biotic and abiotic factors of the environment.	Manmade, artificial system comprising of plants, animals, people and technology for their own benefit.
Example	Forests, Mountains, Oceans, Deserts, Grasslands etc.	Agricultural fields, Poultry Farms, Aquarium, Living walls etc.
Purpose	To maintain the natural balance and cycle of life.	To study or examine the natural processes, to enjoy and exhibit the artificially created environment.
Function	To protect, conserve and cherish the biodiversity,	To improve land yield, animal husbandry

BASIS OF COMPARISON	NATURAL ECOSYSTEM	ARTIFICIAL ECOSYSTEM
	natural resources, and to pass biological legacy.	practices, enhancing natural productivity by using artificial tools and techniques
Diversity	Highly diversified biodiversity and vegetation.	Limited diversification
Genetic variance	Wide range of genetic variety is present which continuously keeps on interacting in a complex manner.	Lower level of genetic variation as less favoured species tapper off slowly.
Sustainability	Self-sustaining	Requires human assistance in the form of fertilizers, food, supplementary nutrients etc.
Susceptibility	Capable of accepting the changes and evolving with respect to them.	Susceptible, fragile and vulnerable towards the changes or deviation from ideal conditions.
Food Chain	Food chains are intricate and interconnected in the form of a food web.	Simple, disordered and discontinuous food chain.
Energy Source	The ultimate energy source is sunlight, which nourishes producers, who then supply energy to the successive trophic levels.	Sunlight provides light to producers, but it is not always passed to the next trophic level.

BASIS OF COMPARISON	NATURAL ECOSYSTEM	ARTIFICIAL ECOSYSTEM
Nutrient Cycle	Entangled but complete nutrient cycle.	Simple but incomplete nutrient cycle.
Ecological Succession	Adequate level of ecological succession due evolution and required biological, geological and ecological processes.	No possibility of ecological succession.

7)Explain energy cycle through food chains, food web, biological pyramids?

Ans: **Food Chains:**

A food chain is shows one possible energy flow from one species to the next. There are no alternative routes. It's very clear who gets energy from who.

The Arrow - The arrow means energy moves from here to here. It does NOT mean this guy eats this guy. That would be backwards. In our picture to the left the plant gives its energy to the worm, the worm gives its energy to the turtle, and the turtle gives its energy to the eagle.

Food Webs:

A food web is like a food chain in that it shows where the energy is transferred but unlike a food chain it has multiple pathways to follow. The mayfly in the picture can get eaten by the frog, salamander, or trout. The food web gives you a wider view of an ecosystem

Trophic levels - The levels that show placement on a food chain. They are:

Producer - any plant. Usually they do photosynthesis and get their energy from the sun

Primary Consumer - The species that eats the producer

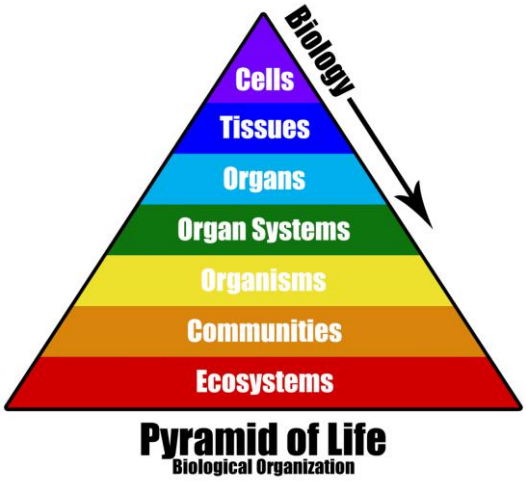
Secondary Consumer - The species that eats the primary consumer

Tertiary Consumer - The species that eats the secondary consumer

Quaternary Consumer - The species that eats the tertiary consumer

After Quaternary it goes 5th order, 6th order, etc.

Biological pyramid:



There are three ecological pyramids that are usually studies:

1. Pyramid of Number: It represents the total number of organisms at each trophic level. It is always upright but in a tree ecosystem pyramid of number is inverted.

2. Pyramid of Biomass: It represents total weight of the organisms in each trophic level.

3. Pyramid of Energy:

It represents total energy of the organisms in each trophic level. Pyramid of energy is always upright, i.e., it can never be inverted, because when energy is transferred from a particular trophic level to the next trophic level some energy is always lost as heat at each step.

8)Write the components of ecosystem?

Ans:

Basic Components of Ecosystem:

The structure of an ecosystem is basically a description of the species of organisms that are present, including information on their life histories, populations and distribution in space. It is a guide to who's who in the ecosystem.

1. Abiotic Substances:

These include basic inorganic and organic compounds of the environment or habitat of the organism. The inorganic components of an ecosystem are carbon dioxide, water, nitrogen, calcium, phosphate, all of which are involved in matter cycles (biogeochemical cycles).

The organic components of an ecosystem are proteins, carbohydrates, lipids and amino acids, all of which are synthesized by the biota (flora and fauna) of an ecosystem and are reached to ecosystem as their wastes, dead remains, etc, The climate, temperature, light, soil, etc., are other abiotic components of the ecosystem.

2.Producers

Producers are autotrophic organisms like chemosynthetic and photosynthetic bacteria, blue green algae, algae and all other green plants. They are called ecosystem producers because

they capture energy from non-organic sources, especially light, and store some of the energy the form of chemical bonds, for the later use.

Algae of various types are the most important producers of aquatic ecosystems, although in estuaries and marshes, grasses may be important as producers. Terrestrial ecosystems have trees, shrubs, herbs, grasses, and mosses that contribute with varying importance to the production of the ecosystem.

3. Consumers:
They are heterotrophic organisms in the ecosystem which eat other living creatures. There are herbivores, which eat plants, and carnivores, which eat other animals. They are also called phagotrophs or macroconsumers. Sometimes herbivores are called primary macroconsumers and carnivores are called secondary Macroconsumers.

4. Reducers or Decomposers:
Reducers, decomposers, saprotrophs or Macroconsumers are heterotrophic organisms that breakdown dead and waste matter. Fungi and certain bacteria are the prime representatives of this category. Enzymes are secreted by their cells into or onto dead plant and animal debris. These chemicals digest the dead organism into smaller bits or molecules, which can be absorbed by the fungi or bacteria (saprotrophs).

The decomposers take the energy and matter that they harvest during this feeding process for their own metabolism. Heat is liberated in each chemical conversion along the metabolic pathway.

9)What is ozone depletion? Write the causes of ozone depletion?

Ans: Ozone layer depletion is the thinning of the ozone layer present in the upper atmosphere. This happens when the chlorine and bromine atoms in the atmosphere come in contact with ozone and destroy the ozone molecules. One chlorine can destroy 100,000 molecules of ozone. It is destroyed more quickly than it is created.
Some compounds release chlorine and bromine on exposure to high ultraviolet light, which then contributes to the ozone layer depletion. Such compounds are known as Ozone Depleting Substances (ODS).
The ozone-depleting substances that contain chlorine include chlorofluorocarbon, carbon tetrachloride, hydrochlorofluorocarbons, and methyl chloroform. Whereas, the ozone-depleting substances that contain bromine are halons, methyl bromide, and hydro bromofluorocarbons.
Chlorofluorocarbons are the most abundant ozone-depleting substance. It is only when the chlorine atom reacts with some other molecule, it does not react with ozone.

Causes of Ozone Layer Depletion

The ozone layer depletion is a major concern and is associated with a number of factors. The main causes responsible for the depletion of the ozone layer are listed below:

Chlorofluorocarbons

Chlorofluorocarbons or CFCs are the main cause of ozone layer depletion. These are released by solvents, spray aerosols, refrigerators, air-conditioners, etc.
The molecules of chlorofluorocarbons in the stratosphere are broken down by the ultraviolet radiations and release chlorine atoms. These atoms react with ozone and destroy it.

Unregulated Rocket Launches

Research say that the unregulated launching of rockets result in much more depletion of ozone layer than the CFCs do. If not controlled, this might result in a huge loss of the ozone layer by the year 2050.

Nitrogenous Compounds

The nitrogenous compounds such as NO_2, NO, N_2O are highly responsible for the depletion of the ozone layer.

Natural Causes

The ozone layer has been found to be depleted by certain natural processes such as Sun-spots and stratospheric winds. But it does not cause more than 1-2% of the ozone layer depletion.
The volcanic eruptions are also responsible for the depletion of the ozone layer.

10)What is pollution? Write the effects of air pollution on living organisms?

Ans: Pollution occurs when an amount of any substance or any form of energy is put into the environment at a rate faster than it can be dispersed or safely stored. The term *pollution* can refer to both artificial and natural materials that are created, consumed, and discarded in an unsustainable manner.

Effects of Air Pollution

The hazardous effects of air pollution on the environment include:

Diseases

Air pollution has resulted in several respiratory disorders and heart diseases among humans. The cases of lung cancer have increased in the last few decades. Children living near polluted areas are more prone to pneumonia and asthma. Many people die every year due to the direct or indirect effects of air pollution.

Global Warming

Due to the emission of greenhouse gases, there is an imbalance in the gaseous composition of the air. This has led to an increase in the temperature of the earth. This increase in earth's temperature is known as global warming. This has resulted in the melting of glaciers and an increase in sea levels. Many areas are submerged underwater.

Acid Rain

The burning of fossil fuels releases harmful gases such as nitrogen oxides and sulphur oxides in the air. The water droplets combine with these pollutants, become acidic and fall as acid rain which damages human, animal and plant life.

Ozone Layer Depletion

The release of chlorofluorocarbons, halons, and hydro chlorofluorocarbons in the atmosphere is the major cause of depletion of the ozone layer. The depleting ozone layer does not prevent the harmful ultraviolet rays coming from the sun and causes skin diseases and eye problems among individuals.

Effect on Animals

The air pollutants suspend on the water bodies and affect the aquatic life. Pollution also compels the animals to leave their habitat and shift to a new place. This renders them stray and has also led to the extinction of a large number of animal species.

Air Pollution Control

Following are the measures one should adopt, to control air pollution:

Avoid Using Vehicles

People should avoid using vehicles for shorter distances. Rather, they should prefer public modes of transport to travel from one place to another. This not only prevents pollution, but also conserves energy.

Energy Conservation

A large number of fossil fuels are burnt to generate electricity. Therefore, do not forget to switch off the electrical appliances when not in use. Thus, you can save the environment at the individual level. Use of energy-efficient devices such CFLs also controls pollution to a greater level.

11)Discuss about wind energy and hydro energy?

Ans: Wind power or **wind energy** is **the use of wind turbines to generate electricity**. Wind power is a popular, sustainable, renewable energy source that has a much smaller impact on the environment than burning fossil fuels. Wind farms consist of many individual wind turbines, which are connected to the electric power transmission network.

advantages of wind energy:

Wind power is one of the fastest-growing energy sources in the world because of its many advantages. Wind power also presents inherent challenges in some regions of the world, which are being addressed through research and development (R&D) projects around the globe.

1.Wind power is cost-effective in many regions. In others, wind power needs to compete with other energy sources, but global R&D efforts are working on solutions to reduce the levelized cost of electricity (LCOE) of both onshore and offshore wind power.
2.Another advantage to wind power is that it is a domestic source of energy, harnessing a limitless local resource. Some viable locations for wind farms, however, are located remote areas that would present challenges in construction and electricity transmission logistics.

Technology breakthrough such as two-piece blades and modular construction are helping overcome such challenges.

3.An additional benefit of wind power is it is a sustainable source of energy, as wind turbine operation does not directly emit any CO2 or greenhouse gases—helping countries meet their emission reduction targets and combating climate change. Wind energy is plentiful, readily available, and capturing its power does not deplete our valuable natural resources. In fact, an environmental benefit to wind power is its ability to counter the detrimental effects of climate change. The Global Wind Energy Outlook projects that by 2030 wind energy will offset 2.5 billion tons per year of carbon

Disadvantages of Wind Energy

1.The Wind Fluctuates Wind energy has a similar drawback to solar energy in that it is not constant. ...

2.Wind Turbines Are Expensive Although costs are reducing, wind turbines are still very expensive. First, an engineer must carry out a site survey. ...

3.Wind Turbines Pose a Threat to Wildlife We often hear that wind turbines pose a threat to wildlife – primarily birds and bats. ...

Hydro energy:

Hydro energy production is the most extensively exploited form of renewable energy all over the world, especially in the subtropical climate belt. Hydropower can be defined as a source of renewable energy obtained from flowing water, and is one of the most reliable, technically exploitable, and environmentally friendly renewable energy alternative. Hydroelectric energy is the conversion of hydropower from the running water to electricity. If the initial source of energy is water, then it is referred to as the hydroelectric power or hydropower.

1.Norway's third-largest renewables operator and significant market player in the Nordics and Brazil

2.Center of excellence for all energy matters across Hydro's businesses

3.Strategic partner and owner of several new energy businesses

Advantages of Hydropower

1. A Cheap Source of Energy

Despite expensive upfront building costs, hydroelectric power is one of the cheapest sources of energy. The good thing about hydroelectricity is they require a low cost of maintenance and operation. Also, dams are designed for long-term use and are therefore capable of producing hydroelectric power up to an average lifetime of 50 – 100 years. Like other fossil-based sources of fuel such as oil or gas, there is typically no production costs linked to hydropower as water is naturally available and is free.

2. The Renewable Nature

Hydroelectricity is considered a renewable source of energy as it uses the earth's water to produce electricity. Water is a never-ending source as water is recycled back through the water cycle. The sunlight evaporates water from the earth's surface, forms clouds, and then falls back on to the earth in the form of rain and snow. During the production of hydroelectricity, water is not used up. So we don't have to worry about the availability of water as we will never run out of supply.

3. Clean Energy Source

Hydropower is one of the clean and green alternative sources of energy. Unlike traditional fuel energy sources, hydroelectric energy doesn't release harmful pollutants into the environment. It is one of the most environmentally-friendly forms of energy production available to us today.

Disadvantages of Hydropower

1. Environmental Damage

The main con of hydropower is its effect on the environment. Interruption in the natural flow of water has serious impacts on the river ecosystem and environment. This leads to disrupted animal migration paths, issues with water quality, and human or wildlife displacement. Fishes are directly affected as blocking the flow of water can also seriously impact fish migration. New roads and power lines must be installed to build a dam that disrupts the environment.

2. High Building Cost

Hydroelectric Power plants are incredibly expensive to build, however operating cost and maintenance costs are minimal. Hydropower infrastructure includes a dam, a reservoir, and power-generating turbines. Dams are extremely expensive to build and must be built to a very high standard. Also, hydropower projects take a long period to finish and will have to operate for a long period to recover the capital spent.

3. May Cause Droughts

Water availability directly affects electricity generation. The occurrence of local droughts is one of the major downsides of setting up hydroelectric power plants. The overall cost of energy is calculated depending on the availability of water and drought could potentially affect electricity production rate. The problem of droughts may become even worse in the future due to global warming.

12)What is solar energy? Discuss about solar power device?

Ans: Solar energy is defined as the transformation of energy that is present in the sun and is one of the renewable energies. once the sunlight passes through the earth's atmosphere, most of it is in the form of visible light and infrared radiation. Plants use it to convert into sugar and starches and this process of conversion is known as photosynthesis. Solar cell panels are used to convert this energy into electricity.

Solar power device:

Solar powered devices refer to any device that is powered by the sun. Solar powered devices are used for many different purposes such as lighting, heating and cooling, navigation, radio transmission and more.

Solar power is a clean and renewable energy source that does not emit any greenhouse gases. It is generated from the sun's radiation in daytime, and stored during night time. Solar powered devices are devices that use solar power to generate electricity. They can include solar panels, solar-powered calculators, handheld weather stations and event security systems.

Working of solar power devices:

Solar Powered Devices are electrical devices that convert light energy into electrical energy and use it to power a device. The solar cells, which are attached to the device and convert light into electricity, absorb the energy from the sun and store it in a battery as electrical energy. The battery then powers any number of devices using an electrical outlet.

Solar powered devices include items such as solar panels, solar-powered calculators, traffic lights, and more. They can also be used for space exploration and military purposes.

- Solar power is a renewable energy system that requires minimal infrastructure. It can be used in different ways in homes or businesses.
- When considering the cost-benefit analysis for installing solar panels Brisbane it is important to consider the term "payback period" which is how long it takes for your investment to pay for itself.