Green Skills - I

Fastrack REVISION

- **Environment:** It is the sum total of all surroundings of a living organism, including natural forces and other living things, which provide conditions for development and growth as well as protection from danger and damage. Environmental ecosystem includes all living and non-living things, as well as the physical, chemical and other natural forces. Living things constantly interact with their environment and adjust themselves with the conditions in their environment.
- **Relationship Between Society and Environment:** The interaction between humans and the environment is very dynamic in nature. The environment, while highly valued by most, is being used and modified by a wide variety of people with many different values and interests. Difficulties lie in how to ensure the protection of our environment and natural resources. The environment of earth has numerous close connections and relationships with human activities. It is also now more commonly recognised that a profound transformation of earth's environment is taking place and that it is the human beings who are responsible.
- **Ecosystem:** An ecosystem includes all the living things (plants, animals and organisms) in a given area, interacting with each other, and also interacting with their non-living environments (weather, earth, sun, soil, climate and atmosphere).
- An ecosystem is a group made up of living organisms and non-living components such as air, water and soil. The living (biotic) and non-living (abiotic) components interact through nutrient cycles and energy flows. An ecosystem comprises of the interactions among organisms, and between organisms and their environment.
- Ecosystems can be of any size but each ecosystem has a definite and limited space. Our planet earth is also considered as one ecosystem. Ecosystems are the foundation of the biosphere. In an ecosystem, each organism has its own position or role to play.
- An ecosystem consists of primary producers (plants) capable of harvesting energy from the sun through a process known as photosynthesis.
- Energy created through photosynthesis, then, flows through the food chain. Now comes consumers, who can be primary consumers known as herbivores, or secondary consumers, who are known as carnivores.
- **Factors Causing Imbalance in Ecosystem:**
  - **Degradation of Land and Soil Erosion:** Degraded land is the land that has lost its natural productivity due to processes triggered by humans. It can also be explained as any change in the condition of the land which reduces its productive potential. It is the decline in the quality of land, its topsoil, vegetation, and/or water resources, caused usually by extreme or inappropriate exploitation.
    - Soil erosion means wearing away of top soil. Top soil is the top layer of the soil and is the most productive as it contains organic and nutrient-rich materials. Soil erosion is a naturally occurring slow process that refers to loss of a field's top soil by water, wind or through conversion of natural vegetation to agricultural land.
    - **Deforestation:** It can be explained as cutting, clearing, and removal of rainforest or related ecosystems into less biodiverse ecosystems such as pasture, cropland, or plantations. Deforestation means the removal of a forest or trees to convert land for non-forest use. In our country, large scale deforestation has been done after independence due to over-exploitation and mismanagement of forest resources.
    - The causes of deforestation include mining, oil and gas extraction, cattle ranching, converting forest land into agricultural land, industrial units, cutting and clearing of forests for wood, etc.
  - **Faulty Utilisation of Water Resources:** Being one of the rainiest countries of the world, India is still suffering from flood and drought due to faulty utilisation of water resources. After independence, tremendous importance was given to the development of big dams. But these gigantic dams displaced thousands of tribal people, drowned millions of hectares of forest areas, miserably failed to prevent and control floods and often created flash floods in downstream. These huge dams and multi-purpose projects have had a very bad impact on the environment in the form of degradation of soil due to continuous water logging.
  - **Environmental Problems from Faulty Mining Practices:** Large scale extraction of minerals has created serious environmental issues and has ruined the country's land, water, forest and air. Mining at large scale has resulted in the conversion

of agricultural and forest lands into townships, private properties, roads, railway lines, etc., and has removed vegetation and topsoil.

- Inappropriate dumping of mining waste and mineral dust from mines are constantly polluting air and also declining agricultural productivity. Mining is also polluting water resources, as the rainwaters, while passing through mineral waste dumps, are flowing into rivers and streams. Mining operation in India has led to large scale deforestation. Soil erosion is also responsible for various health hazards to human beings, in the form of respiratory problems and other illnesses.

➤ **Industrial and Atmospheric Pollution:** Uncontrolled and unplanned growth of industries and ill-maintained automobiles are creating a lot of atmospheric pollution, regularly leading to huge environmental problems. The main atmospheric pollutants include carbon dioxide, carbon monoxide, sulphur dioxide, hydrocarbons, oxides of nitrogen and metallic traces.

- Specific pollutants are also being mixed with atmosphere which include lead from automobile emission, cement and lime dust from cement factories, urea dust from fertiliser factories, etc.

▶ **Natural Resources:** The natural resources of a place can be defined as all the land, forests, energy sources and minerals, existing naturally, and which can be used by people or other living beings.

▶ They are biophysical materials that suit human needs and provide direct inputs to human well-being. The natural resources which are generally spread all over earth and are not evenly distributed, include the flora and fauna, the mineral deposits, water bodies consisting of seas, oceans, rivers, lakes and streams, weather and climate, rocks and various other resources.

▶ The examples of common natural resources which we use within our surroundings are wind, sun, water (in the form of lakes, streams, rivers, waterfalls and wells), atmospheric gases, land, soil, trees, fuel, natural gases, tides, forests, rocks, animals, etc.

▶ **Types of Natural Resources:** The natural resources are classified into two categories.

➤ **Natural Resources Based on Origin:** Based on origin, the natural resources are of two types. Let us learn about them.

- **Biotic Natural Resources:** Biotic natural resources are derived from living and organic materials such as forests and animals. They also include fossil fuels (coal and petroleum) which are formed from organic matter that has decomposed in due course of time.
- **Abiotic Natural Resources:** Abiotic natural resources are derived from non-living things and non-organic materials. Their rate of formation is very slow and can be exhausted if consumed excessively. For example, land, fresh water, air, and heavy metals (gold, iron, copper, silver, etc.). These resources are in great demand in the development of industries.

➤ **Natural Resources based on Availability:** Based on availability, the natural resources are of two types. Let us learn about them.

- **Renewable Resources:** Renewable resources are ones that can be replaced or reproduced relatively quickly, after being exhausted. Their availability is not affected by the level of consumption, for example, forest, soil, water and fisheries.
- Resources like sunlight, air, and wind are called perpetual resources because they are available continuously, but at a limited rate. Their quantity is not affected by human consumption.
- **Non-renewable Resources:** Non-renewable resources take a longer time to occur on the earth's surface and once exhausted by man, cannot be replenished since their rate of creation is extremely slow, for example, minerals and fossils. Out of these, it is only the metallic mineral resources that can be reused by recycling, while coal and petroleum cannot be recycled.

▶ **Ways to Conserve Natural Resources:**

➤ Using alternative sources of power like solar and wind energy
➤ Planting trees to prevent soil erosion
➤ Practicing judicious ways to conserve water in our homes
➤ Treating industrial wastes and sewage before they are released in waterbodies
➤ Rain water harvesting
➤ Practicing on-site conservation of wildlife
➤ Practicing off-site conservation of wildlife
➤ Practicing judicious ways of conserving energy
➤ Using biogas in our homes
➤ Using biofuels
➤ Recycling of wastes
➤ Planting trees in home compounds
➤ Practicing crop rotation
➤ Constructing Reservoirs

▶ **Environmental Protection:** It is the practice of protecting our natural environment by individuals, organisations and governments. The objectives of environmental protection include:

➤ Conservation of natural resources
➤ Preservation of the existing natural environment
➤ Repairing damages and reversing trends

▶ **Environmental Conservation:** Includes anything we do to protect our planet and conserve its natural resources so that every living thing can have an improved quality of life. There are various ways through which environment protection and conservation could be attained which are as follows:

- **Recycling:** Use biodegradable products as much as possible. Whether it is plastic or metal glass or paper, all these materials can be reused.
  - Empty jars, broken glasses, wine bottles, old newspapers, paper wraps, sheets of paper, or cardboard that are no longer needed, should be sent to a recycling plant. It takes a million years for glass to decompose!
  - Water is not for life, water is life itself. Clean and fresh water will become more and more precious as time goes by and if we do nothing to save it, in the far future, water will be more precious than gold. It is therefore very important for us to do whatever we can, in order to save it and to reduce water consumption.
- **Reduce the Use of Electricity:** We can reduce the use of electricity, as all it takes is some attention from our part. While we are not using electric appliance, we should turn it off. In this way we save not only energy but also money from our electricity bill! We could replace regular bulbs with energy-saving light bulbs.
- **Plant a Tree:** Trees are our only source of oxygen and we foolishly cut them down instead of planting them. If every person plants a tree, life would improve significantly. Air would be cleaner, the number of trees would get back to normal, and we would have more shade for the hot summer days.
- **Grow Vegetables:** Almost all the vegetables we eat today are grown with the help of chemicals and pesticides. If we plant our own vegetables, we will have organic food of excellent quality, beneficial for our health.
- **Composting:** We can install composting bins and gardens, which is an excellent opportunity to avoid littering, at the same time a reliable source of natural manure for our vegetables.
- **Use Rechargeable Batteries:** Batteries are extremely dangerous for the environment and unfortunately, only a very small percentage of these batteries get recycled. The rest are disposed off, and are a hazardous enemy of the environment. The use of rechargeable batteries along with a charger can prevent this.

- **Green Economy:** The term green economy was first used in 1989 by a group of leading environmental economists (Pearce, Markandya and Barbier), entitled 'Blueprint for a Green Economy'.
- The UNEP has defined the green economy as, "A system of economic activities related to the production, distribution and consumption of goods and services that result in improved human well-being over the long term, while not exposing future generations to significant environmental risks or ecological scarcities."
- A green economy is an economic system that matches well with the natural environment and thus, is environment friendly. Today, the concept of green economy has evolved to consider the social issues as well. By using clean technology and clean energy, the green economy is expected to provide a safer and healthier environment, create alternative green jobs and conserve the development of societies.
- A green economy can only be attained with the commitment and action of multiple sectors and stakeholders in society including government, business and individuals. Improved partnerships and collaboration is needed to build a broad front for development that involves a strong relationship among government, labour and civil society.
- The green economy works by turning everything green,. being sustainable. That is, it is concerned with arresting the economic processes, which spit out greenhouse gases such as carbon dioxide and methane gas in huge, unsustainable quantities.

Main Elements of the Green Economy

Generation and use of renewable energy	It refers to any source of usable and renewable energy intended to replace fossil fuel sources without the undesired consequences of greenhouse gas emissions and other pollutants derived from fossil fuel combustion.
Energy efficiency	It seeks to adopt means and more efficient technology that uses less energy to provide the same level of energy service.
Waste minimisation and management	It considers different approaches from prevention, minimisation, reduction, reuse, recycling, waste conversion and disposal in order to ensure that the use of materials and waste generation remains within the regenerative and absorptive capacities of the planet.
Preservation and sustainable use of existing natural resources	It recognises the importance and economic value of natural resources, such as freshwater, forests, soils, coral reefs and ecosystem services provided by the functional and healthy ecosystems.
Green job creation	It promotes decent jobs that offer adequate wages, safe working conditions, job security, reasonable career prospects and worker's right.

- **Green Skills:** The skills for sustainability are known as green skills. They include the technical skills, knowledge, values and attitudes needed in the workforce to develop and support sustainable social, economic and environmental outcomes in the business, industry and community.
- GSDP (Green Skill Development Programme) is a recent initiative of the central government for skilling the country's youth. The government has identified 35 courses including pollution monitoring (air/water/noise/soil), effluent treatment plant operation, waste management, forest management, water budgeting and auditing, conservation of river dolphins, wildlife management, marine taxonomy and coastal biodiversity, bamboo management and livelihood generation.
- Technical and Vocational Education and Training (TVET) programmes are conducted to help students acquire and get training for green skills.
- **Importance of Green Economy:** The importance of green economy is as follows.
  - **Employment Creation:** New job activities will be created in building the green economy, such as installing solar panels and finding new ways to build efficient biofuel engines. Vast majority of green jobs will also be created in the same areas of employment in which people are already working today. For example, constructing wind farms creates jobs for sheet metal workers, machinists and truck drivers. Expanding mass transit systems employs civil engineers, electricians, and dispatchers.
  - **Managing Resource Scarcity and Environmental Risks:** By following the green economy concept, we can use natural resources more efficiently, have healthier lives, save money, create jobs, boost our economy and respect the limits of the planet.
  - **Sustainable Development:** Sustainable development could be defined as 'The development that meets the needs of the present without compromising the ability of future generations, to meet their own needs.' Sustainable development gives importance to the enhancement of the environmental, social and economic resources, as all three of them are critical to meet the needs of current and future generations.
  - **Food Security:** Soil productivity is decreasing due to environmental degradation, which is caused by poor soil and poor water management, inappropriate fertiliser use, overgrasing and logging and population pressure. An important part of the yield is lost due to pests, diseases, poor handling and storage. Capacity-building, knowledge and education are essential for improving food security and enhancing sustainability. The green economy has the potential to yield positive returns on sustainable agriculture.
  - **Promotes Economic and Social Development:** Green economy will also help in increasing the natural capital, such as forests, fisheries and water resources that have been depleted or degraded under the current 'brown' economic model which emphasises economic growth over social and natural resources development.
  - **Seizing New Trade Opportunities:** A green economy is all about using the green goods and services. It includes more efficient and low-carbon energy systems, organic food, ecotourism, solid waste and water recycling, environmental consulting, and emerging categories that include green construction, sustainable harvested timber products, electric bicycles and hybrid cars. Renewable energy technologies such as solar panels and wind turbines and energy efficient products such as Compact Fluorescent Lights (CFLs) are among the green technologies seeing the sharpest rise in exports.

Practice Exercise

Multiple Choice Questions

Q 1. Which of the following thing(s) is/are included in the environment?

a. Living things b. Non-living things
c. Both a. and b. d. None of these

Q 2. Which of the following activities has led to environmental imbalance?

a. Deforestation b. Industrialisation
c. Population growth d. All of these

Q 3. Which of the following comprises an ecosystem?

a. Producers, consumers and decomposers
b. Herbivores and carnivores
c. Animals and human beings
d. None of the above

Q 4. Which of the following factors is responsible for creating an imbalance in the ecosystem?

a. Construction of rainwater harvesting system
b. Faulty utilisation of water resources
c. Afforestation
d. Recycling

Q 5. Which of the following practices help in improving the quality of soil?

a. Using fertilisers b. Terrace farming
c. Making compost pits d. None of these

Q 6. Which of the following is/are responsible for causing air pollution?

a. Industries
b. Cutting of trees
c. Excessive use of automobiles
d. All of the above

Q 7. Which of the following types of pollution occurs through industrial wastes?

a. Air pollution b. Water pollution
c. Soil pollution d. All of these

Q 8. Which of the following initiatives are the examples of conservation of environment?

a. Say No to polythene b. Save wildlife
c. Save water, save earth d. All of the above

Q 9. Which of the following thing(s) is/are included in the environment?

a. Plants b. Animals
c. Water d. All of these

Q 10. By which of the following activity/activities the changes and the transformation in the environment is caused?

a. Excessive use of technology
b. Population growth
c. Migration of people
d. All of the above

Q 11. Which of the following practice(s) has/have caused land degradation?

a. Floods
b. Slash-and-burn cultivation
c. Soil erosion
d. All of the above

Q 12. Which of the following statement(s) is/are correct about deforestation?

a. It means cutting and clearing of forests.
b. It is done only for infrastructural development.
c. It means exploitation and mismanagement of forests.
d. All of the above

Q 13. On which of the following basis the natural resources could be classified?

a. On the basis of origin and consumption
b. On the basis of origin and availability
c. On the basis of origin and usage
d. On the basis of availability and consumption

Q 14. In which of the following types the natural resources can be classified?

a. Renewable and extinct resources
b. Organic and inorganic resources
c. Biotic and abiotic resources
d. Consumable and non-consumable resources

Q 15. Which of the following is an example of natural resource?

a. Water b. Human being
c. Automobiles d. Windmill

Q 16. How can we save electricity?

a. By switching off the lights and fans when not in use
b. By replace regular bulbs with energy-saving light bulbs.
c. Both a. and b.
d. None of the above

Q 17. Which of the following is the main source of water pollution?

a. Sewage water
b. Rainwater
c. Atmospheric pollutants
d. Well water

Q 18. How can we prevent soil erosion?

a. Increasing bird population
b. Afforestation
c. Removal of vegetation
d. Overgrasing

Q 19. Which of the following statements about green economy is not true?

a. It helps in sustainable development.
b. It provides safer and healthier environment.
c. It can only be attained with commitments of multiple sectors.
d. It can only be adopted and practiced in developed countries.

Q 20. Which of the following is/are the element(s) of green economy?

a. Employment creation
b. Energy efficiency
c. Preservation and sustainable use of natural resources
d. All of the above

Q 21. How many new courses have been included in GSDP?

a. 34 b. 35
c. 36 d. 37

Q 22. By when will the Government of India's goal of producing 175GW of electricity from renewable resources has to be completed?

a. 2020 b. 2021
c. 2022 d. 2024

Q 23. When did the term 'green economy' come into existence?

a. 1899 b. 1988
c. 1989 d. 1999

Q 24. Which of the following statements about green economy is true?

a. It results in improved human well-being and social equity.
b. It helps in reducing environmental risks and ecological scarcities.
c. It helps in achieving a resilient economy.
d. All of the above

Q 25. Which of the following is not an element of green economy?

a. Use of renewable energy
b. Minimisation of waste
c. Automobile production
d. Green job creation

Fill in the Blanks

Type Questions

Q 26. The loss of a field's top soil by water or wind is known as .....

Q 27. ..... and ..... are two examples of non-renewable resources.

Q 28. Rapid ..... has lead to the production of waste that is harmful for the ecosystem.

Q 29. Green skills include ....., ... and attitude to have a sustainable development.

Q 30. The main reason for ..... is greenhouse gases.

Q 31. The ..... programs are conducted to help the students to acquire and get training for green skills.

Assertion and Reason

Type Questions

Directions (Q. Nos. 32-35): *In the questions given below, there are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the correct option.*

a. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
b. Both Assertion (A) and Reason (R) are true, but Reason (R) is not correct explanation of Assertion (A).
c. Assertion (A) is true, but Reason (R) is false.
d. Assertion (A) is false, but Reason (R) is true.

Q 32. **Assertion (A):** Soil productivity is increasing due to environmental degradation, which is caused by poor soil and poor water management, inappropriate fertilizer use, overgrasing and logging and population pressure.
Reason (R): Green economy will help in increasing the natural capital, such as forests, fisheries and water resources that have been depleted or degraded under the current 'brown' economic model which emphasises economic growth over social and natural resources development.

Q 33. **Assertion (A):** The green economy has a vision that tries to steer economic development in the direction of sustainability.
Reason (R): A green economy can only be attained with the commitment and action of multiple sectors and stakeholders in society including government, business and individuals.

Q 34. **Assertion (A):** The United Nations Environment Programme (UNEP) prepared the green economy report which contained a working definition of green economy, quoted many times in numerous other publications.
Reason (R): The term green economy was first used in 1979 by a group of leading environmental economists (Pearce, Markandya and Barbier), entitled 'Blueprint for a Green Economy'.

Q 35. **Assertion (A):** An ecosystem is a group made up of living organisms and non-living components such as air, water and soil.
Reason (R): Environmental protection is a practice of protecting the natural environment by individuals, organisations and governments.

Answers

1. (c)	2. (d)	3. (a)	4. (b)	5. (c)
6. (d)	7. (d)	8. (d)	9. (d)	10. (d)
11. (d)	12. (d)	13. (b)	14. (c)	15. (a)
16. (c)	17. (a)	18. (b)	19. (d)	20. (d)
21. (b)	22. (c)	23. (c)	24. (d)	25. (c)

26. soil erosion
27. Minerals, fossils
28. industrialisation
29. technical skills/values
30. climate change
31. TVET

32. (d) 33. (b) 34. (c) 35. (b)

Case Study Based

Questions

Case Study 1

Governments and local authorities make and implement sustainable development laws, policies, strategies, standards, programs and agreements with other countries. Almost all Ministries of the Government of India are involved in decision making for sustainable development. However, major participation is by the Ministries of Environment, Forests and Climate Change, Agriculture, Water Resources, Finance, Industries, Rural Development, Commerce and Non-conventional Energy Sources.

Q 1. **The government makes policies and provides funds for implementing .....**
a. Plans b. Policies
c. Both a. and b. d. None of these

Q 2. **..... need to work together with the government for the success of promoting green economy.**
a. Social workers b. Private companies
c. Private agencies d. All of these

Q 3. **..... makes legislations (laws), such as 'The Environment (Protection) Act, 1986' to protect the environment and take actions against law-breakers.**
a. Government b. Private companies
c. Private agencies d. All of these

Q 4. **Governments and local authorities make and implement sustainable development laws, policies, strategies, standards, programs and agreements with other countries.**
a. laws
b. policies and programs
c. strategies and agreements
d. All of the above

Answers

1. (c) 2. (d) 3. (a) 4. (d)

Case Study 2

A green economy is an economic system that matches well with the natural environment and thus, is environment friendly. Today, the concept of green economy has evolved to consider the social issues as well. By using clean technology and clean energy, the green economy is expected to provide a safer and healthier environment, create alternative green jobs and conserve the development of societies. The concept of green economy is related with ideas such as 'low-carbon growth' or 'green growth'. In the context of green economy, the term 'growth' does not simply mean economic output growth, but indicates sustainable economic progress.

Since infrastructure shows how people exploit resources to satisfy basic needs and establish a standard of living, a green economy evolution will require that infrastructural developments are low-carbon and resource- efficient and deliver reasonable benefits that improve human well-being. These infrastructural developments include various public works for the provision of essential services (for example, the provision of water, waste and sanitation services, hospitals, schools, transportation and communication). Integrated and strategic planning can be used to build sustainable communities by optimising for low-carbon and resource-efficient developments, while also providing opportunities to encourage local economic development, enhance social unity, and adopt sustainable lifestyles.

Q 1. The term 'Green Economy' was first coined in which year?

Q 2. The term 'Green Economy' was first coined in a 1989 report for the Government of the United Kingdom by a group of leading environmental economists, titled as .....

Q 3. What is the full form of UNECE?

Q 4. Name some important sectors of a Green economy.

Answers

1. 1989
2. "Blueprint for a Green Economy"
3. United Nations Economic Commission for Europe (UNECE)
4. The sectors or areas which are important for an environment-friendly economy are as follows:
   (i) Agriculture
   (ii) Fisheries
   (iii) Energy Resources
   (iv) Construction

? Very Short Answer Type Questions

Q 1. Define environment.

Ans. An environment is the sum total of all surroundings of a living organism, including natural forces and other living things, which provide conditions for development and growth as well as protection from danger and damage.

Q 2. What do you mean by ecosystem?

Ans. An ecosystem includes all the living things (plants, animals and organisms) in a given area, interacting with each other, and also interacting with their non-living environments (weather, earth, sun, soil, climate and atmosphere).

Q 3. Define photosynthesis.

Ans. An ecosystem consists of primary producers (plants) capable of harvesting energy from the sun through a process known as photosynthesis. Energy created through photosynthesis, then, flows through the food chain.

Q 4. Make a list of different uses of water in our daily life.

Ans. In our daily life, water can be used in washing, cleaning, bathing, cooking, gardening, etc.

Q 5. What is soil erosion?

Ans. Soil erosion is the displacement of the upper layer of soil and is a form of soil degradation. This natural process is caused by the dynamic activities of erosive agents, *i.e.*, water, ice (glaciers), snow, air (wind), plants, animals and humans.

Q 6. Define deforestation.

Ans. Deforestation means the removal of a forest or trees to convert land for non-forest use. In our country, large scale deforestation has been done after Independence due to over-exploitation and mismanagement of forest resources.

Q 7. Define natural resources.

Ans. The natural resources of a place can be defined as all the land, forests, energy sources and minerals, existing naturally, and which can be used by people or other living beings. They are biophysical materials that suit human needs and provide direct inputs to human well-being.

Q 8. Give some examples of common natural resources available in our surroundings.

Ans. The examples of common natural resources which we use within our surroundings are wind, sun, water (in the form of lakes, streams, rivers, waterfalls and wells), atmospheric gases, land, soil, trees, fuel, natural gases, tides, forests, rocks, animals, etc.

Q 9. Which are the various types of natural resources?

Ans. The various types of natural resources are:
(i) On the basis of origin (biotic and abiotic)
(ii) On the basis of availability (renewable and non-renewable)

Q 10. What do you mean by biotic natural resources?

Ans. Biotic natural resources are derived from living and organic materials such as forests and animals. They also include fossil fuels (coal and petroleum) which are formed from organic matter that has decomposed in due course of time.

Q 11. Why resources like sunlight, air, and wind are called perpetual resources?

Ans. Resources like sunlight, air, and wind are called perpetual resources because they are available continuously, but at a limited rate. Their quantity is not affected by human consumption.

Q 12. Define the term recycling of waste.

Ans. Recycling means remanufacturing already used materials. This reduces the amount of waste available, thereby reducing soil and water pollution. These wastes include plastics and paper bags, etc.

Q 13. Define green economy.

Ans. Green economy is a system of economic activities related to the production, distribution and consumption of goods and services that result in improved human well-being over the long term, while not exposing future generations to significant environmental risks or ecological scarcities.

? Short Answer Type Questions

Q 1. Differentiate between biotic natural resources and abiotic natural resources.

Ans. Biotic Natural Resources: Biotic natural resources are derived from living and organic materials such as forests and animals. They also include fossil fuels (coal and petroleum) which are formed from organic matter that has decomposed in due course of time.

Abiotic Natural Resources: Abiotic natural resources are derived from non-living things and non-organic materials. Their rate of formation is very slow and can be exhausted if consumed excessively, *e.g.*, land, fresh water, air, and heavy metals (gold, iron, copper, silver, etc.) These resources are in great demand for the development of industries.

Q 2. Enlist any four factors that cause imbalance in an ecosystem.

Ans. The four factors that cause imbalance in the ecosystem are:

(i) Soil erosion
(ii) Deforestation
(iii) Industrial and atmospheric pollution
(iv) Faulty utilisation of water resources

Q 3. What do you mean by abiotic natural resources?

Ans. Abiotic natural resources are derived from non-living things and non-organic materials. Their rate of formation is very slow and can be exhausted if consumed excessively. For example, land, fresh water, air and heavy metals (gold, iron, copper, silver, etc.). These resources are in great demand in the development of industries.

Q 4. Differentiate between renewable and non-renewable resources.

Ans. Renewable resources are ones that can be replaced or reproduced relatively quickly, after being exhausted. Their availability is not affected by the level of consumption, for example, forest, soil, water and fisheries.

Non-renewable resources take a longer time to occur on the earth's surface and once exhausted by man, cannot be replenished since their rate of creation is extremely slow, for example, minerals and fossils.

Q 5. Name any four ways to conserve natural resources.

Ans. The four ways to conserve Natural resources are as follows:

(i) Using alternative sources of power like solar and wind energy
(ii) Planting trees to prevent soil erosion
(iii) Practicing judicious ways to conserve water in our homes
(iv) Treating industrial wastes and sewage before they are released in waterbodies
(v) Rain water harvesting
(vi) Practicing on-site conservation of wildlife

(Any Four)

Q 6. Differentiate between environmental protection and environmental conservation.

Ans. Environmental Protection: Environmental protection is the practice of protecting our natural environment by individuals, organisations and governments. It includes conservation of natural resources, preservation of the existing natural environment and repairing damage and reversing trends.

Environmental Conservation: Environmental conservation includes anything we do to protect our planet and conserve its natural resources so that every living thing can have an improved quality of life.

Q 7. How natural resources can be conserve by using biogas in our homes?

Ans. Liquefied Petroleum Gas (LPG) is the most used source of fuel in our homes today. Continuous usage of LPG results in depletion of oil reserves. Biogas is an alternative that can be used instead of LPG. Biogas is mainly produced from cattle dung. Biogas plants have dual advantage as they are a source of both biogas and manure.

Q 8. What do you mean by rain water harvesting?

Ans. Rain water harvesting can be done by harvesting rainwater during the humid seasons of the year and using during the dry seasons. This reduces the usage of water from the waterbodies. The collected water can be later used for irrigation and also watering lawns in the houses.

Q 9. Differentiate between practicing on-site conservation of wildlife and practicing off-site conservation of wildlife.

Ans. Practicing on-site conservation of wildlife: It means the conservation of animals and plants in their natural habitats. It involves protecting the protected areas set aside, such as wildlife sanctuaries, parks, biosphere reserves, etc. This helps in conserving endangered plants and animal species.

Practicing off-site conservation of wildlife: This means the conservation of animals and plants outside the natural habitats. It includes areas such as pollen banks, DNA banks, zoos, seed banks, botanical gardens and tissue culture banks.

Q 10. How natural resources can be conserve by using biofuels?

Ans. All over the world, fossil fuels have been a major source of energy. However, they are depleting rapidly, therefore we should look for alternative sources of fuels such as biofuels which are mainly from plant species. Biofuels are biofriendly and they also reduce air pollution.

Q 11. Define the term green economy according to the UNEP.

Ans. The UNEP has defined the green economy as:

"A system of economic activities related to the production, distribution and consumption of goods and services that result in improved human well-being over the long term, while not exposing future generations to significant environmental risks or ecological scarcities."

Q 12. How green economy can be attained?

Ans. A green economy can only be attained with the commitment and action of multiple sectors and stakeholders in society including government, business and individuals. Improved partnerships and collaboration is needed to build a broad front for development that involves a strong relationship among government, labour and civil society.

CHAPTER TEST

Multiple Choice Questions

Q 1. Which of the following agency is responsible for establishing GSDP?

a. State governments
b. Central government
c. The United Nations
d. UNICEF

Q 2. Which is the correct full form of GSDP?

a. Green Scale of Developmental Programme
b. Green Skill Developmental Plan
c. Green Skill Development Programme
d. Green Student Development Programme

Q 3. What is TVET?

a. Technical and Vocational Education and Training
b. Technician and Vocational Education Training
c. Technology and Vocational Education Training
d. None of the above

Q 4. Which of the following actions would not help a green agriculture sector?

a. Using chemical fertilisers
b. Using organic manure
c. Growing vegetables using vermicompost
d. Buying or selling organic potatoes

Q 5. Which of the following action will promote green economy?

a. Use of non-renewable resources
b. Sustainable development
c. Social protection
d. Creating jobs

Fill in the Blanks

Q 6. A well managed environment can provide us ..... and ..... that are essential for our well-being.

Q 7. An ecosystem consists of ....., ... and .....

Q 8. There are ..... elements of green economy.

Q 9. The shift to green economy will need citizens to act as .....

Assertion-Reason Type Questions

Directions (Q. Nos. 10-11): *In the questions given below, there are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the correct option.*

a. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
b. Both Assertion (A) and Reason (R) are true, but Reason (R) is not correct explanation of Assertion (A).
c. Assertion (A) is true, but Reason (R) is false.
d. Assertion (A) is false, but Reason (R) is true.

Q 10. **Assertion (A): Batteries are extremely dangerous for the environment and unfortunately, only a very small percentage of these batteries get recycled.**
Reason (R): We can install composting bins and gardens, which is an excellent opportunity to avoid littering, at the same time a reliable source of natural manure for our vegetables.

Q 11. **Assertion (A): Recycling means remanufacturing already used materials. This increase the amount of waste available, thereby reducing soil and water pollution. These wastes include plastics and paper bags, etc.**
Reason (R): Planting trees and vegetation can help in preventing soil erosion caused by wind and water.

Case Study Based Questions

Q 12. On a daily basis, more than 15 crore people face darkness, or at best, the dim glow of candle-lights or kerosene lamps, whose smoke is poisonous. Scientists, social workers and NGOs have come together to empower rural women and youth to make simple solar lights. A project called 'Liter of Light' is bringing light to places that need it most, by recycling plastic bottles to make lamps. Plastic bottles are filled with water and bleach (to prevent growth of algae). The bottles are then installed onto roofs of houses and begin working as a mirror on the roof, becoming a natural light bulb during the day. However, these bulbs can work only during the day.

(i) **A project called ..... is bringing light to places that need it most, by recycling plastic bottles to make lamps.**
a. Plastic bottles light
b. Liter of Light
c. Bringing Light
d. None of the above

(ii) **Natural light bulb can work only during the .....**
a. Day b. Night
c. Afternoon d. Both a. and b.

(iii) **Plastic bottles are filled with water and bleach to prevent .....**
a. Protozoa b. Bacteria
c. Virus d. algae

(iv) **The bottles are installed onto roofs of houses and begin working as a ..... on the roof, becoming a natural light bulb during the day.**
a. Reflector b. Mirror
c. glass d. protector

Q 13. India has adopted 'Sustainable Development' as a policy and it aims to reduce poverty, inequalities in the society (provide opportunities for all castes communities and gender (girls/boys), provide food, education, employment, energy resources and sanitation (cleanliness) while taking care of its natural resources. It follows special policies to solve many problems, such as air and water pollution, waste management, conserving biodiversity (protecting different types of plants and animals), etc.

(i) **What is the full form of NAPCC?**

(ii) **Swachh Bharat Abhiyan (SBA) mission aims to clean up Indian cities, towns and villages. One of its main aims is to achieve an Open-Defecation Free India by October 2, 2019, the 150th anniversary of the birth of .....,, by constructing toilets across the country.**

(iii) **..... includes eight important missions covering different aspects of the environment**

(iv) **What is the full form of NGT?**

Very Short Answer Type Questions

Q 14. **Define the term generation and use of renewable energy.**

Q 15. **What do you mean by the term energy efficiency?**

Q 16. **What do you mean by green skills?**

Q 17. **Expand TVET and GSDP.**

Q 18. **Define sustainable development.**

Short Answer Type Questions

Q 19. **What are the elements of green economy?**

Q 20. **Define GSDP.**

Q 21. **How green economy is considered as job creator?**