GEOGRAPHY

5

BIOSPHERE

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I. CHOOSE THE CORRECT ANSWER.

1. The coldest biome on Earth is

a) Tundra b) Taiga c) Desert d) Oceans **Ans: a)**

2. This is the smallest unit of biosphere.

a) Ecosystems b) Biome c) Environment d) None of the above **Ans: a)**

3. Nutrients are recycled in the atmosphere with the help of certain micro organisms, referred to as .....

a) Producers b) Decomposers

c) Consumers d) None of the above **Ans: a)**

4. To which climatic conditions are Xerophytic plants specifically adapted to?

a) Saline and sandy b) Limited moisture availability

c) Cold temperature d) Humid **Ans: b)**

5. Why is the usage of rainforest biomes for large scale agriculture unsustainable?

a) Because it is too wet b) Because the temperature is too warm.

c) Because the soil is too thin d) Because the soil is poor **Ans: a)**

QUESTIONS 6 – 13 ARE ASSERTION TYPE QUESTIONS.

Directions:

a) Both assertion (A) and reason (R) are true; (R) explains (A)

b) Both assertion (A) and reason (R) are true; (R) does not explain (A)

c) (A) is true; (R) is false

d) Both (A) and (R) are false

6. Assertion (A) : Heterotrophs do not produce their own food.
Reason (R) : They depend on autotrophs for their nourishment. **Ans: a)**

7. Assertion (A) : Hotspots are the regions characterised by numerous endemic plants and animal species living in a vulnerable environment.
Reason (R) : To manage and focus on conservation work more effectively, researchers identified hotspots. **Ans: a)**

8. Assertion (A) : The number of gorillas in Africa has plummeted by 60% in the past twenty years.
Reason (R) : Non intervention of human beings in the forest areas. **Ans: c)**

ADDITIONAL

9. Assertion (A) : Producers are called as Autotrophs.
Reason (R) : Producers are self nourishing components. **Ans: a)**

10. Assertion (A) : Deserts remain agriculturally unproductive.
Reason (R) : The soil is sandy and saline. **Ans: a)**

11. Assertion (A) : Tundra biomes experiences long severe winter and short cool summer.
Reason (R) : The population in this region is very thick. **Ans: c)**

12. Assertion (A) : Marine Biomes are the smallest aquatic biomes on Earth.
Reason (R) : It comprises lakes, ponds, rivers, streams, wetlands, etc. **Ans: d)**

13. Assertion (A) : Biomes are broadly classified as terrestrial and aquatic biomes.
Reason (R) : Biosphere has to be conserved as it is considered an asset to planet Earth. **Ans: b)**

14. The vertical range of the biosphere is approximately ..... from the ocean floor.
a) 10 km b) 20 km c) 30 km d) 40 km **Ans: b)**

15. The area in which micro organism, animal or plant lives is called its .....
a) Ecosystem b) Biodiversity c) Biomes d) Habitat **Ans: d)**

16. ..... harbours all ecosystems on the Earth and sustains life forms including mankind.
a) Biosphere b) Biodiversity c) Biomes d) Eco system **Ans: a)**

17. Biotic components can be classified into ..... categories.
a) Two b) Three c) Four d) Five **Ans: b)**

18. The branch of science that deals about ecosystem is called .....
a) Biology b) Entomology c) Ecology d) Physiology **Ans: c)**

19. The special vegetation type found in desert regions is called as .....
a) Xerophytes b) Saprophytes c) Savanna d) Pampas **Ans: a)**

20. The mouth of a river or stream along the coastline with less deposits of silt is known as .....
a) Delta b) Estuary c) Coast d) Sea bed **Ans: b)**

21. ..... is the study of freshwater ecosystem.
a) Etimology b) Lumbering c) Ecology d) Limnology **Ans: d)**

21. Deer and rabbit come under the ..... consumers.
a) Primary b) Secondary c) Tertiary d) None of the above **Ans:** a)

22. Biomes are broadly classified as ..... and aquatic biome.
a) Producers b) Consumbers c) Decomposers d) Territorial **Ans: d)**

II. FILL IN THE BLANKS.

1. An area where animals, plants and micro organisms live and interact with one another is known as. ..... **Ans: Eco system**
2. ..... are also called Heterotrophs. **Ans: Consumbers**
3. ..... is a system of interlocking and independent food chains. **Ans: Food web**
4. ..... is an extensive large ecosystem. **Ans: Biome**
5. The vegetative type commonly found in desert biomes is called ..... **Ans: Xerophytes**
6. ..... is an aquatic biome that is found where fresh water and salt water mix.

Ans. Estuary

ADDITIONAL

7. The fourth sphere of the Earth is ..... **Ans. Biosphere**
8. All living things, small or large, are grouped into ..... **Ans. Species**
9. A person who studies ecology is referred to as an ..... **Ans. Ecologist**
10. The ..... is the ultimate source of energy for the biosphere. **Ans. Sun**
11. The primitive people of Tropical Savanna are ..... **Ans. Nomadic**
12. The annual rainfall in desert region is less than ..... **Ans. 25 cm**
13. Tundra regions are also called as ..... **Ans. Barren lands.**
14. The extinction of species due to human and natural influences is called .....

Ans: Loss of biodiversity

15. An oasis is a fertile fresh water source found in ..... and semi-arid regions.

Ans: Desert

III. ANSWER THE FOLLOWING IN BRIEF.

1. What is Biosphere?

- Biosphere, the fourth sphere of the Earth is a life supporting layer that exists on the Earth's surface.
- This layer on Earth encompasses the Lithosphere, Hydrosphere and Atmosphere.
- It includes flora and fauna that thrive on or near the Earth's surface.

2. What is an ecosystem?

- Ecosystem is a community where all living organisms live and interact with one another.
- It also interacts with their non-living environment such as land, soil, air, water, etc.

3. What does the term 'biodiversity' mean?

- Biodiversity or biological diversity refers to a wide variety of living organisms which live in a habitat.

- It is highly influenced by topography, climate as well as human activities.
- It maintains the ecological balance and facilitates social benefits such as tourism, education, research etc., over an area.

4. What is meant by loss of biodiversity?

- The extinction of species (flora and fauna) due to human and natural influences is called Loss of biodiversity.
- The biodiversity loss has a great impact on mankind and also affects land, water, air, etc.

5. Mention the various terrestrial biomes.

Terrestrial biomes is a group of living organisms that live and interact with one another on land. They are mainly determined by temperature and rainfall.

Some of the major territorial biomes of the world are-

- Tropical forest biomes
- Tropical Savanna Biomes
- Desert Biomes
- Temperature Grassland Biomes
- Tundra Biomes

ADDITIONAL

6. What is ecosystem? What are its components?

An ecosystem is a community, where all living organisms live and interact with one another and also with their non-living environment. Its components are -

- Abiotic components
- Biotic components and
- Energy components.

7. What does a healthy eco system provide?

A healthy eco system provides –

- Clean water
- Pure water
- Enriched soil
- Food
- Raw materials
- Medicines etc.

8. What is considered a hotspot? Where do we find hotspots in India?

- An ecological region that has lost more than 70% of its original habitat is considered a Hotspot.
- Hotspots in India are the Himalayas, Western Ghats, Indo Burma Region and Sundaland.

9. What is a great threat to the wide range of fauna in Savanna grassland?

- In the recent years, the parts of Savanna Grasslands are being converted into farmlands.
- It is a great threat to the wide range of fauna in Savanna grassland.
- For example, the population of the big cats like cheetah, lion, etc., are dwindling drastically.

10. What is an Oasis?

- Oasis is a fertile fresh water source found in the deserts and semi-arid regions.
- Oasis are fed by springs.
- Crops like date palms, figs, citrus fruits, maize etc., are cultivated near these oases.

11. Mention the different names used to mention temperate grasslands in different parts of the world?

The Temperate grasslands are called differently in different parts of the world They are-

- Downs - Australia and New Zealand
- Pampas - Argentina and Uruguay
- Prairies - North America
- Steppes - Euraisa
- Veld - South Africa

12. What is Biosphere Reserve?

- Biosphere Reserve is a special ecosystem or specialized environment with flora and fauna that require protection and nurturing.
- There are 18 Biosphere Reserves in India.

13. What are the major causes for loss of biodiversity?

The major causes for the loss of biodiversity are Habitat destruction due to deforestation, Population explosion, Pollution and Global warming.

IV. GIVE REASONS FOR THE FOLLOWING:

1. Producers are also called autotrophs.

- The organism that can produce its own food using light, water, carbon dioxide or other chemicals present in the environment is known as producers.
- Producers are self nourishing components of the ecosystem.
- Hence, they are called as autorophs.

2. Biosphere provides a stable ecosystem.

- Ecosystems range in size from the smallest units that can sustain life to the global ecosystem or ecosphere.
- Biosphere harbours all ecosystems on the Earth and sustains life forms including mankind.
- Therefore, Biosphere provides a stable ecosystem.

ADDITIONAL

3. Decomposers are called Saprotrophs.

- The Decomposers are some organisms that are incapable of preparing its own food.
- So, they live on dead and decaying plants and animals.
- Hence, Decomposers are called Saprotrophs.

4. In India, some regions are declared as Hotspots.

- The ecological region which has lost more than 70% of original habitant is considered a Hotspot.
- In India, some species plants and animals become extinct in the Himalayas, Western Ghats, Indo-Burma region and Sundaland.
- To protect the rare species, these regions are declared as Hotspots.

5. The people in Tropical forest Biomes get afflicted to diseases like malaria, yellow fever, etc.

- The unique weather condition – high temperature, high annual rainfall and relatively constant favours thick vegetative cover.
- Due to the humid nature of this biome, the people in Tropical forest Biomes get afflicted to diseases like malaria, yellow fever, etc.

6. The chief occupation of the people in Tropical Savanna Biomes is herding.

- This biome is generally hot and dry and experience moderate to low rainfall.
- So, the grass which grow here are tall and sharp.
- Hence, the chief occupation of the people found here is herding.

V. DISTINGUISH BETWEEN THE FOLLOWING.

1. Producers and Decomposers.

S.No	Producers	Decomposers
1.	These are self nourishing components of the ecosystem.	These organisms are incapable of preparing its own food.
2.	The Producers are also known as Autotrophs.	The Decomposers are known as Saprotrophs.
3.	Plants, Algae, Bacteria, etc are examples of Producers	Fungus, Mushrooms, etc are examples of Decomposers.

2. Terrestrial biomes and Aquatic biomes.

S.No	Terrestrial biomes	Aquatic biomes
1.	Terrestrial biomes is a group of living organisms that live and interact with one another on land	Aquatic biome is a group of living organisms that live and interact with one another in aquatic environment.
2.	They are mainly determined by temperature and rainfall	Aquatic biomes are influenced by a series of abiotic factors.
3.	Terrestrial biomes are broadly classified into five biomes	Aquatic biomes are classified into two biomes

3. Tropical vegetation and Desert vegetation

S.No	Tropical vegetation	Desert vegetation
1.	Tropical vegetation found between 10° N and 20°S of the Equator.	Deserts usually between 20° and 30° N and S latitudes.
2.	The climate shows little seasonal variation with high annual rainfall and constant & high temperature.	Here, the annual rainfall is less than 25cm and temperature is maximum thought out the year.
3.	The chief trees found here are rubber, bamboo, ebony, etc.	Drought resistant thorny scrubs, bushes, palms, etc., are found here.

4. Savannas and Tundra

S.No	Savannas	Tundra
1.	Savannas (grassland) are generally found between tropical forests and deserts.	Tundra regions are found where the ground remains frozen.
2.	The chief occupation of the people is herding	Hunting and fishing are the major occupation of the people
3.	Lion, leopard, tiger, deer, zebra, giraffe, etc. are the animals found in this biome.	Polar bear, wolverine, reindeer, snowy owl, etc., are the animals found here.

ADDITIONAL

5. Producers and Consumers:

S.No	Producers	Consumers
1.	These are self nourishing components of the ecosystem.	These are dependent on producers.
2.	The Producers are also known as Autotrophs.	The Consumers are also known as Heterotrophs.
3.	Plants, Algae, Bacteria, etc are examples of Producers	goat, lion, snakes, owl etc., are examples of Consumers.

6. Primary Consumers and Secondary consumers:

S.No	Primary consumers	Decomposers
1.	They depend on producers for their food.	These organisms are incapable of preparing its own food.
2.	They are exclusively herbivores.	They live on dead and decaying plants and animals.
3.	Example – Zebra, goat, rabbit, etc.,	Fungus, Mushrooms, etc are examples of Decomposers.

7. Fresh water biomes and Marine Biomes:

S.No	Fresh water Biomes	Marine Biomes
1.	It comprises lakes, ponds, rivers, streams, wetlands, etc.	They are continuous bodies of salt water such as seas and oceans.
2.	Humans rely on freshwater Biomes for drinking water, crop irrigation, sanitation and industry.	Coral reefs, sea plants, aquatic animals depend on Marine Biomes.
3.	Water lily, lotus, duck weed, etc, are the common plants found here.	Plants such as phytoplankton, kelp, algae, etc., are found in this Biomes.

8. Write the differences between Aquatic and Terrestrial Ecosystem.

S.No	Aquatic Ecosystem	Terrestrial Ecosystem
1	Aquatic Ecosystem exists on water covering 71% of the Earth surface.	Terrestrial ecosystem exists on land covering 29% of the Earth surface
2	Aquatic animals use 20% of energy to obtain oxygen.	Terrestrial animals use only 1-2% of energy to obtain oxygen.
3	In this ecosystem, there is abundant of water with limited oxygen supply.	In this, there is amount of water, greater availability of gases.

VI. ANSWER THE FOLLOWING IN A PARAGRAPH.

1. Explain the various components of ecosystem.

Ecosystem is a community where all living organisms live and interact with one another and also with their non-living environment. The three basic components of eco system are :

- Abiotic components
- Biotic components and
- Energy component

Abiotic Components

Abiotic components include the non-living, inorganic, physical and chemical factors in the environment. **Eg.** Land, Air ,Water, Calcium, Iron etc.

Biotic Components

Biotic components include plants, animals and micro organisms. Biotic components can be classified into three categories. They are-

- Autotrophs are self nourishing components of the ecosystem. Hence, they are called as Producers. They are found both on land and water.
- Heterotrophs are those that depend on producers, directly or indirectly. Hence they are called as Consumbers
- Decomposers are some organisms that are incapable of preparing their own food. They live on dead and decaying plants and animals. Hence they are called Saprotrophs.

Energy Components

- All organisms in the biosphere use energy to work and convert one form of energy into another.
- The Sun is the ultimate source of energy for the biosphere as a whole.
- The solar energy gets transformed into other forms of energy through the various components in the ecosystem.
- The producers, consumers and the decomposers contribute a lot to the energy flow in an ecosystem

2. Write a paragraph on the functions of an ecosystem.

The functions of an ecosystem are as follows-

- The living organisms form an interacting set of flora and fauna which are organized into trophic levels, food chains and food webs.
- The functioning of an ecosystem depends on the pattern of the energy flow, as it helps in the distribution and circulation of the organic and inorganic matter within an ecosystem.
- Energy flow generally takes place in a hierarchical order in an ecosystem through various levels. These levels are called trophic levels.
- The chain of transformation of energy from one group of organisms to another, through various trophic levels is called a food chain.
- A system of interlocking and interdependent food chains is called a food web.

3. Explain about the aquatic biomes on Earth.

- Aquatic biome is a group of living organisms that live and interact with one another and its aquatic environment for nutrients and shelter.
- Like terrestrial biomes, aquatic biomes are influenced by a series of abiotic factors. It is broadly classified as Fresh water biomes and Marine biomes.

Fresh water Biomes:

- Fresh water biome comprises lakes, ponds, rivers, streams, wetlands etc.
- It is influenced by various abiotic components such as the volume of water, water flow, composition of oxygen, temperature, etc.
- Humans rely on freshwater biomes for drinking water, crop irrigation, sanitation and industry. Water lily, lotus, duck weeds etc. are the common plants found here.
- Trout, salmon, turtles, crocodiles etc. are the animals found here.

Marine Biomes:

- Marine biomes are the largest aquatic biomes on earth.
- It provides a wide range of habitats for marine plants and animals.
- Coral reefs are a second kind of marine biomes within the ocean.
- Estuaries, coastal areas where salt water and fresh water mix, form a third unique marine biome.

- Apart from animals, plants such as kelp, algae, phytoplankton etc. also grow in water.
- Aquatic biomes are not only important for plants and animals, but also for humans.
- Humans use aquatic biomes for water, food and leisure activities.
- Some of the threats and issues to aquatic biomes are overfishing, pollution and rise in sea level.

ADDITIONAL

1. Write a paragraph on 'Temperate Grassland Biomes'.

- Temperate Grasslands are usually found in the interior of the continents.
- They are characterized by large seasonal temperature variations, with warm summer and cold winter.
- The type of grassland in these regions strongly depends upon precipitation.
- Higher precipitation leads to tall and soft grass and lower precipitation leads to short and soft grass.
- These regions favour wheat cultivation. Extensive mechanised agriculture is practised due to lack of farm labour.
- Pastoral industry becomes the main occupation, thereby facilitating slaughtering of animals, packing of raw and processed meat, dairy products etc.
- The common birds and animals are grass hopper, wolf, bison, prairie dog etc.
- The Temperate grasslands are called differently in different parts of the world such as-
  - i) Downs - Australia and New Zealand
  - ii) Pampas - Argentina and Uruguay
  - iii) Prairies - North America
  - iv) Steppes - Euraisa
  - v) Veld - South Africa

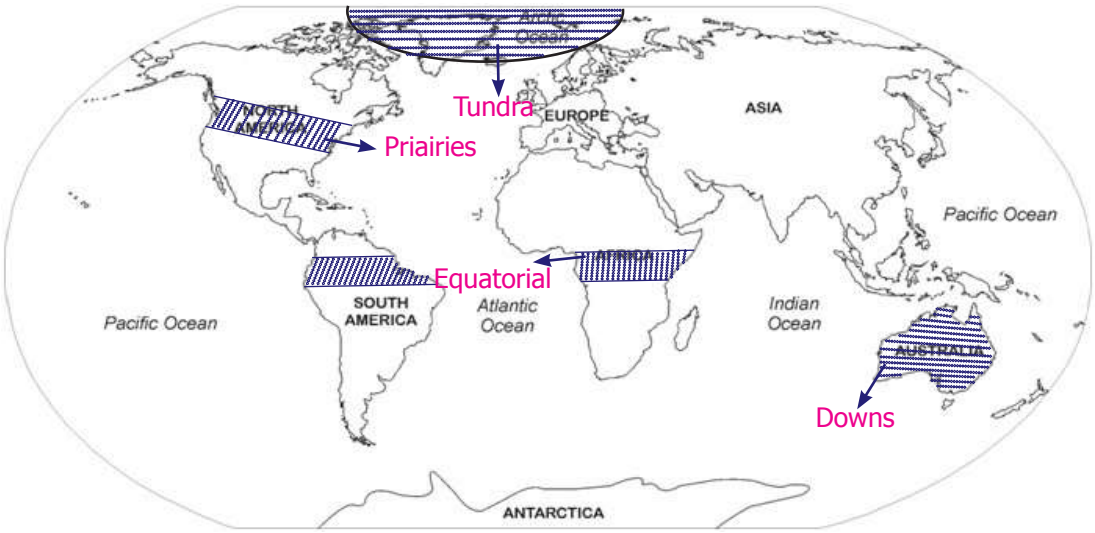
VII. FIND OUT THE DATES FOR THE FOLLOWING.

1. World Wild Life Day ..... March 3rd
2. International Day of Forest ..... March 21st
3. World Water Day ..... March 22nd
4. Earth Day ..... April 22nd
5. World Environment Day ..... June 5th
6. World Oceans Day ..... June 8th

VIII. MAP STUDY.

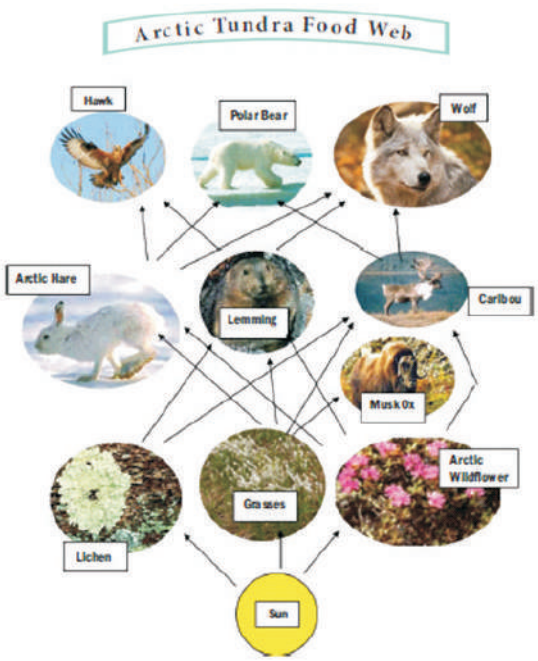
1. Locate the following on the world outline map.

i) Priairies
ii) Downs
iii) Tundra Biomes
iv) Equatorial Biomes



IX. PICTURE STUDY.

1. Narrate the given food web of Arctic tundra in you own words.



CLUES ARE GIVEN BELOW.

Make your own sentences

1. Sun – Grasses – Lemming – Wolf
2. Sun – Arctic wildflower – Caribou –Wolf
3. Sun – Lichen – Lemming – Hawk
4. Sun – Lichen – Caribou – Polar Bear
5. Sun – Grasses – Arctic Hare – Polar Bear
6. Sun – Lichen – Lemming – Hawk
7. Sun – Lichen – Caribou – wolf
8. Sun – Arctic Wildflower – Lemming – Hawk
9. Sun – Arctic Wildflower – Caribou – Polar Bear
10. Sun – Grasses – Arctic Hare – Hawk
11. Sun – Grasses – Caribou – Wolf
12. Sun – Grasses – Arctic Hare – Wolf
13. Sun – Grasses – Musk Ox
14. Sun – Lichen – Lemming – Wolf