Our Environment

Multiple Choice Questions

Question 1.
Which one of the following is an artificial ecosystem?
A. Pond

B. Crop field

C. Lake

D. Forest

Answer:
Since artificial ecosystems are those ecosystems which are created by human and are not natural. Pond, Lake and Forest are natural ecosystem but Crop field is a man-made ecosystem and is therefore, crop field is an artificial ecosystem.

Question 2.
In a food chain, the third trophic level is always occupied by
A. Carnivores

B. Herbivores

C. Decomposers

D. Producers

Answer:
In Trophic levels, first trophic level is occupied by the consumers, second by the herbivores and third trophic level is occupied by small carnivores.

Question 3.
An ecosystem includes
A. All living organisms

B. Non-living objects

C. Both living organisms and non-living objects

D. Sometimes living organisms and sometimes non-living objects

Answer:
Interaction of living and non-living things makes up Ecosystem. So, it includes both living as well as non-living objects.

Question 4.
In the given food chain, suppose the amount of energy at fourth trophic level is 5 kJ, what will be the energy available at the producer level?
Grass → Grasshopper → Frog → Snake → Hawk
A. 5 k J

B. 50 k J

C. 500 k J

D. 5000 k J

Answer:
Since as an average value 10% is the amount of energy which is present at each step and reaches the next trophic level. Energy at fourth trophic level = 5 kJ

So, Energy at producer level i.e. first trophic level = 5000 kJ

Question 5.
Accumulation of non-biodegradable pesticides in the food chain in increasing amount at each higher trophic level is known as
A. Eutrophication

B. Pollution

C. Biomagnification

D. Accumulation

Answer:
Due to use of pesticides to protect the crop, entered into the food chain. These pesticides are either washed down into the soil or in water-bodies. The level of accumulation of these pesticides in food chain increases at each higher trophic level and this process is termed as ‘Biological Magnification’. So, option ‘c’ is the correct answer.

Question 6.
Depletion of ozone is mainly due to
A. Chlorofluorocarbon compounds

B. Carbon monoxide

C. Methane

D. Pesticides

Answer:
The amount of Ozone has dropped in year 1980s due to use of chlorofluorocarbon compounds which are being used as refrigerant and also in fire extinguisher. This has led to the depletion of Ozone layer.

Question 7.
Organisms which synthesize carbohydrates from inorganic compounds using radiant energy are called
A. Decomposers

B. Producers

C. Herbivores

D. Carnivores

Answer:
Since Producers like all green plants and some blue green algae produces food using the process of photosynthesis with the help of inorganic compounds using the radiant energy. So, the correct answer is option ‘b’.

Question 8.
In an ecosystem, the 10% of energy available for transfer from one trophic level to the next is in the form of
A. Heat energy

B. Light energy

C. Chemical energy

D. Mechanical energy

Answer:
Since in a food chain, only 10% of energy is transferred to another trophic level. This energy is chemical energy because autotrophs captures the energy present in sunlight and then converts it into chemical energy. This chemical energy is then transferred to various levels to consumers, decomposers etc.

Question 9.
Organisms of a higher trophic level which feed on several types of organisms belonging to a lower trophic level constitute the
A. Food web

B. Ecological pyramid

C. Ecosystem

D. Food chain

Answer:
An ecological Pyramid is a graphical representation which depicts productivity of the biomass at each trophic level. Organisms of higher trophic level feed on lower trophic level organisms and forms an Ecological pyramid.

Question 10.
Flow of energy in an ecosystem is always
A. Unidirectional

B. Bidirectional

C. Multi directional

D. No specific direction

Answer:
Energy flows in one direction in an ecosystem i.e. energy can't be converted back to its original form in an ecosystem. So, it is unidirectional only.

Question 11.
Excessive exposure of humans to U V-rays results in

(i). damage to immune system

(ii). damage to lungs

(iii). skin cancer

(iv). peptic ulcers
A. (i) and (ii)

B. (ii) and (iv)

C. (i) and (iii)

D. (iii) and (iv)

Answer:
When humans are exposed to Ultra-violet rays in excessive amount, then U-V rays have enough tendency to damage the human immune system and also can cause skin cancer.

Question 12.
In the following groups of materials, which group (s) contains only non-biodegradable items?

i. Wood, paper, leather

ii. Polythene, detergent, PVC

iii. Plastic, detergent, grass

iv. Plastic, bakelite, DDT
A. (iii)

B. (iv)

C. (i) and (iii)

D. (ii) and (iv)

Answer:
Non-biodegradable materials are those materials which doesn't break down due to biological process and remain as such in the environment for years. So, in above the non-biodegradable items are polythene, detergent, Polyvinylchloride (PVC), Plastic, Bakelite and DDT. So, in above question, ii and iv makes group of non-biodegradable items.

Question 13.
Which of the following limits the number of trophic levels in a food chain?
A. Decrease in energy at higher trophic levels

B. Deficient food supply

C. Polluted air

D. Water

Answer:
Since only 10% of energy is transferred at each trophic level, so due to decrease in the amount of energy at each level, enough energy is not left for higher trophic

levels. So, decrease in energy at different levels limits the number of trophic levels in a food chain.

Question 14.
Which of the statement is incorrect?
A. All green plants and blue green algae are producers

B. Green plants get their food from organic compounds

C. Producers prepare their own food from inorganic compounds

D. Plants convert solar energy into chemical energy

Answer:
Green plants and blue-green algae produces their food from inorganic compounds in presence of radiant energy. This process is known as Photosynthesis. So, statement B is incorrect.

Question 15.
Which group of organisms are not constituents of a food chain?

(i) Grass, lion, rabbit, wolf

(ii) Plankton, man, fish, grasshopper

(iii) Wolf, grass, snake, tiger

(iv) Frog, snake, eagle, grass, grasshopper
A. and (iii)

B. and (iv)

C. (ii) and (iii)

D. and (iv)

Answer:

Since at first trophic level comes the producers, then comes herbivores and then carnivores. This is not followed in option (ii) and (iii) and therefore, option (ii) and (iii) are not constituents of a food chain.

Question 16.
The percentage of solar radiation absorbed by all the green plants for the process of photosynthesis is about
A. 1%

B. 5%

C. 8%

D. 10%

Answer:
All green plants and blue-green algae prepares their food with the help of photosynthesis in presence of sunlight. Only 1% of the total sun radiation is absorbed by them to prepare food through photosynthesis.

Question 17.
Assume T1, T2, T3 and T4 are the various trophic levels from bottom to top in a pyramid. At which trophic level is maximum energy available?
A. T4

B. T2

C. T1

D. T3

Answer:
In a food chain, one organism is eaten by other forming thus a kind of chain. Only 10% of the energy transferred from one trophic level to another. So with every increasing level of food chain, the energy decreases. It will be maximum at the lowest level i.e. T1 level.

Question 18.
What will happen if deer is missing in the food chain given below?
Grass → Deer → Tiger
A. The population of tiger increases

B. The population of grass decreases

C. Tiger will start eating grass

D. The population of tiger decreases and the population of grass increases

Answer:
If Deer is missing in the food chain, then grass will not be eaten by anyone and therefore, it's the population of grass will increase. Moreover, with absence of deer, Tiger will be starved as a result they will start dying due to starvation. Hence the population of Tiger will decrease.

Question 19.
The decomposers in an ecosystem
A. Convert inorganic material, to simpler forms

B. Convert organic material to inorganic forms

C. Convert inorganic materials into organic compounds

D. Do not breakdown organic compounds

Answer:
Decomposers break down the inorganic materials into another form which is organic compounds and the cycle continues.

Question 20.
If a grass hopper is eaten by a frog, then the energy transfer will be from
A. Producer to decomposer

B. Producer to primary consumer

C. Primary consumer to secondary consumer

D. Secondary consumer to primary consumer

Answer:
When a grass hopper is eaten by a frog, then grass hopper is a primary consumer and a frog will be a secondary consumer. So, the energy transfer will be from primary consumer to secondary consumer.

Question 21.
Disposable plastic plates should not be used because
A. They are made of materials with light weight

B. They are made of toxic materials

C. They are made of biodegradable materials

D. They are made of non-biodegradable materials

Answer:
Disposable plastic plates are made up of non-biodegradable materials which means that they can't be break with the the help of biological processes and remain as such in the environment which can harm the nature. So, disposable plastic plates should not be used.

Short Answer Questions

Question 1.
Why is improper disposal of waste a curse to environment?

Answer:
Disposing of waste materials can harm the environment by leading to many problems. Collection of waste at nearby places to residential area can cause many communicable diseases and epidemics. Moreover, if it is not covered, it will create stench issues in the surrounding area for persons living there. Moreover, if the waste is not properly segregated at some place, then it might not be biodegrade

and thus can pollute the environment. So, improper disposal of waste can prove a curse to the environment.

Question 2.
Write the common food chain of a pond ecosystem.

Answer:
The common food chain which is available in a pond ecosystem is:

Algae → Shrimp→ Medium fish →Crane

Question 3.
What are the advantages of cloth bags over plastic bags during shopping?

Answer:
Using cloth bags over plastic bags during shopping has a various advantages such as cloth bags are environment friendly because they are biodegradable whereas plastic bags are non-biodegradable and can harm environment. Moreover, a cloth bag lasts longer than plastic bags.

Question 4.
Why are crop fields known as artificial ecosystems?

Answer:
Artificial ecosystems are those ecosystems which are not natural but created by human or are human-made. Artificial ecosystems are created by human interventions. Crop field are not grown naturally, instead they are grown by human. So, crop fields are known as artificial ecosystems and not natural ecosystems.

Question 5.
Differentiate between biodegradable and non-biodegradable substances. Cite examples.

Answer:

1. Biodegradable substances are those which can be degraded or break down with the help of biological processes whereas biodegradable substances can't be break down with the help of biological processes into organic substances.

2. Biodegradable substances are friendly to environment as they don't provide any harm to environment whereas non-biodegradable substances are not environment friendly and can prove hazardous to nature.

3. Examples of biodegradable substances are paper, fruit peels, cloth bags etc. Examples of non-biodegradable substances are: plastic cans, glass and polybags.

Question 6.
Suggest one word for each of the following statements/ definitions

(a) The physical and biological world where we live in

(b) Each level of food chain where transfer of energy takes place

(c) The physical factors like temperature, rainfall, wind and soil of an ecosystem

(d) Organisms which depend on the producers either directly or indirectly for food

Answer:
(a) Ecosystem

Ecosystem is made up of biotic as well as non-biotic components. So, the physical and biological world where will live in Ecosystem.
(b) Trophic level

Trophic level are the various levels in the food chain in which one organism is eaten by another. These levels are termed as trophic level.

(c) Abiotic factors

Since Temperature, rainfall, wind and soil of an ecosystem are non-living things and therefore known as abiotic factors.

(d) Consumers

Consumers are the organisms which directly eat the food produced by producers or they indirectly feed on the other consumers.

Question 7.
Explain the role of decomposers in the environment?

Answer:
Decomposers plays an important role in environment as they are responsible for decomposing the dead remnants of dead plants and animals and helps in clearing the dead remains from environment. Since the dead plants are decomposed by decomposers, so they can be used as raw material and can channelize back to the nature results in maintaining the cycle in ecosystem.

Question 8.
Select the mis-matched pair in the following and correct it.

A. Biomagnification — Accumulation of chemicals at the successive trophic levels of a food chain

B. Ecosystem — Biotic components of environment

C. Aquarium — A man-made ecosystem

D. Parasites — Organisms which obtain food from other living organisms

Answer:
It is a mismatched pair because Ecosystem is not only composed of biotic components of environment instead it is an interaction of both biotic as well as abiotic components.

Question 9.
We do not clean ponds or lakes, but an aquarium needs to be cleaned. Why?

Answer:
A pond or lake is not required to be cleaned because they have their own natural system to clean them but aquarium is a man-made ecosystem and consists of a very small area or space. Moreover, the abiotic components are supplied by human

and are not naturally. So. For survival of living bodies in the aquarium, it is necessary that it should be cleaned regularly.

Long Answer Questions

Question 1.
Indicate the flow of energy in an ecosystem. Why is it unidirectional? Justify.

Answer:
The energy flow is from one trophic level to another i.e. from producer to primary consumer to secondary consumer to tertiary consumer. The direction of flow of energy is in one direction i.e. it is unidirectional. It is not possible that energy flow occurs in opposite direction or in reverse direction. For example: a Predator can eat a prey but its reverse is not possible. Moreover, once the energy utilized by the organisms in food chain can't be revert back to the sun. Similarly, the energy once used by carnivores can't be revert back to herbivores which means that the flow of energy in an ecosystem is unidirectional in ecosystem.

Question 2.
What are decomposers? What will be the consequence of their absence in an ecosystem?

Answer:
The organisms which can decompose the dead plants and animals are known as decomposers. Bacteria and Fungi come under the category of decomposers. Decomposers plays an important role in environment by reducing the pressure on the ecosystem by cleaning the dead plants and animals. Moreover, they maintain the cycle by providing the raw material to the environment.

Absence of decomposers will lead to dead plants and animals accumulation in the nature only and environment would be without resources which are needed for survival of life.

Question 3.
Suggest any four activities in daily life which are eco-friendly.

Answer:
The four activities which are eco-friendly in daily life are as follows:

i. Using cycle for travelling for short distances.

ii. Use of cloth bags instead of plastic bags for shopping.

iii. Avoiding personal vehicles to travel instead travelling through public transport.

iv. Using LPG instead of cow-dung cakes for cooking food.

Question 4.
Give two differences between food chain and food web.

Answer:
The two differences between food chain and food web are as follows:

1. Food chain is defined as a series or organisms taking part at various biotic levels whereas food web is defined as a complex web of interconnected food chains which involves food chain of many organisms.

2. At one trophic level, only single organism is present in food chain whereas in food web, more than one organism is present at each level.

Question 5.
Name the wastes which are generated in your house daily. What measures would you take for their disposal?

Answer:
The wastes which are generated in house daily are peels of fruits and vegetables, stale food, papers and plastic bags.

Various measures which can be taken for the disposal of waste are:

1. Peels of fruits and vegetables are needed to be collected in dustbins to give to sanitation works.

2. Plastic bags should be disposed off in dustbin which is for non-biodegradable waste.

3. Papers can be sent for recycling and can be used again and again.

Question 6.
Suggest suitable mechanism (s) for waste management in fertilizer industries.

Answer:
The various mechanisms which can be used for waste management in fertilizer industries are as follows:

1. The waste in fertilizer industries is the polluting gases. The polluting gases can be reduced by the use of catalytic converters which are fitted in chimneys in the industries.

2. Another second major waste in industries is the effluents obtained from industries. The effluents can be treated by various steps such as sedimentation, filtration and chlorination etc. After adopting these measures, the clean water can then be transferred to rivers as it will provide no harm to water bodies now. The sludge remained after the processes can be used as manure after decomposition.

Question 7.
What are the by-products of fertilizer industries. How do they affect the environment.

Answer:
The by-products fertilizers are : SO_2, NO, NO_2, CO, CO_2, etc. Of these, the main by products that are harmful to the environment are: Sulphur dioxide and nitrogen. These gases have adverse effect on the environment:

i. They cause extensive environmental pollution

ii. These are green-house gases which lead to global warming.

iii. They cause acid rain, which is destructive for plants and animals.

Question 8.
Explain some harmful effects of agricultural practices on the environment.

Answer:
The agricultural practices has severe harmful effects on environment which are as follows:

1. Change in the climatic conditions: Due to growing a selected species on a large area of land i.e. monoculture results in change in the climatic conditions of that area.

2. Since, for agriculture, forests are being cut down to clear the area for crops cultivation. This deforestation has led to the decrease in the ground water as it affects the natural process of recharging of ground water.

3. Due to growing of crops or cultivation of land, the soil has now less nutrients and also, it has led to various conditions like soil erosion and desertification.

4. Since ground water has been used for irrigation facilities by constructing tube-wells, so it has led to shortage of water at many places.

5. Use of pesticides and fertilizers has resulted in soil pollution, air pollution and water pollution.