7. Conservation of Environment

Part-A

1. Question

Which of the following groups contain only bio-degradable items?

A. Grass, flowers and leaves

B. Grass, wood and plastic

C. Fruit peels, cake and plastic

D. Cake, wood and glass

Answer

Group (i) contains only bio-degradable items, these are the substances which can be broken down by biological processes or microbial action.

Plastics and glass are non-biodegradable substances, which are there in other options, hence eliminated.

2. Question

Which of the following constitutes a food chain?

A. Grass, wheat and mango

B. Grass, goat and human

C. Goat, cow and elephant

D. Grass, fish and goat

Answer

The second option shows correct order of a food chain as Grass is eaten by goat and non-vegetarian human beings eat meat of goat.

3. Question

Which of the following are environmental friendly practices?

A. Carrying cloth bags for shopping

B. Switching off light and fans when not in use

C. Using public transport

D. All the above

Answer

All the options given are environmental friendly practices. We should Carry cloth bags for shopping so as to minimize the use of plastic bags. We should Switching off light and fans when not in use to conserve the electrical energy. We should opt for public transports for most of the time, this helps in checking noise pollution.

4. Question

What is called as ‘black gold’?

A. hydrocarbons

B. coal

C. petroleum

D. ether

Answer

Due to its great commercial importance petroleum is also called ‘black gold’.

5. Question

Based on the food chain, pick the odd one out:

plants → grasshopper → frog → tiger → snake

Answer

Tiger

The above food chain tells that plants are eaten by grasshopper, grasshopper is eaten by frog, which are correct till now. Next it tells frog is eaten by tiger, which is not actually true. So, it breaks the general trend in the food chain given in the question. But it can be rectified by putting tiger after snake. So, the correct order will be:

plants → grasshopper → frog → snake → tiger

which then removes the odd point an tell us that frog is eaten by snake and snake is eaten by tiger which is true infect.

6. Question

Example for product of green chemistry is _____.

A. plastic

B. paper

C. bio plastics

D. halogen flame retardants

Answer

Green chemistry is the design of chemical products and the processes to reduce or eliminate the use and generation of hazardous substances. Plastics as we know is non-biodegradable hence a hazardous substance. Bio plastics on the other hand are bio degradable hence environmental friendly. Paper production use various chemicals which can contaminate water when brought in touch. Halogen retardant flames are hazardous. We rather prefer to use halogen free flame retardants.

7. Question

_____ is a greenhouse gas which causes climate change and global warming.

A. hydrogen

B. oxygen

C. nitrogen

D. carbondioxide

Answer

Greenhouse gases are gases which causes climate change and global warming. They trap the heat emitted by the earth and makes the environment warm. Some examples of other greenhouse gases are water vapour, Methane, Nitrous Oxide, Ozone etc.

8. Question

The _____ form decomposers in the pond ecosystem.

A. plants

B. bacteria

C. frogs

D. phytoplanktons

Answer

Bacteria and fungi form the decomposers in the pond. They decompose various organic substances produced by various organic activity in the pond.

9. Question

_____ is used in seeding clouds.

A. potassium iodide

B. calcium carbonate

C. sulphurdioxide

D. ammonium phosphate

Answer

Seeding clouds with dry ice or potassium iodide particles sometimes can initiate rain if the cloud is water laden.

10. Question

An example for fossil fuel is _____ .

A. copper

B. iron

C. magnesium

D. coal

Answer

Coal is a fossil fuel made of remains of dead plants and ferns over millions of year time duration due to decomposition, high temperature and pressure condition after its the deep burial beneath the subsurface of the earth.

11. Question

Air pollution is caused by transport exhaust fumes and emission of gases like SO_2, CO_2, NO_2 from industies. Similarly, water pollution is caused by _____ .

A. sewage

B. crop cultivation

C. rain

D. soil erosion

Answer

Sewage water contains various unwanted material such as harmful chemicals, plastics etc. hence pollute water.

12. Question

If wild animals are killed, what difficulty would we face?

A. imbalance in nature

B. decrease in fog rain

C. decrease in population

D. increase in rain

Answer

If wild animals are killed, food chain will be altered so, it will affect every other living thing, and their survival will also go in dander.

13. Question

Water is an essential commodity for survival. What can we do to help increase water resources?

A. deforestation

B. reducing the use of vehicles

C. the burning of the wastage

D. afforestation

Answer

Planting trees would help in charging ground water as it checks the surface water flow and allows water more time to percolate through the soil to ground water. Trees are also helpful in making rainfall in a region.

14. Question

The tiger and the lion are carnivores. Likewise, the elephant and the bison are_____.

Answer

Herbivores

Elephants eat grasses, small plants, bushes, twigs, fruit, tree bark, and roots etc. So, Elephants are herbivores. Bison eats grasses, sedges (a grass like plant), forbs (herbaceous flowering plant) etc. So, they are also herbivores.

15. Question

Assertion (A): Coal and petroleum are called fossil fuels.

Reason (R): Fossil fuels are formed from the remains of dead organisms after millions of years.

A. Both ‘A’ and ‘R’ are true and ‘R’ explains ‘A’.

B. Both ‘A’ and ‘R’ are true and but ‘R’ doesn’t explain ‘A’

C. Only ‘A’ is true but ‘R’ is false.

D. ‘A’ is false but ‘R’ is true.

Answer

Coal and Petroleum are formed from the remains of dead organisms after millions of years. So, both Assertion and Reasons are correct and Reason(R) explains Assertion(A).

16. Question

Compressed Natural Gas (CNG) is considered a better fuel than coal/ petroleum, because _____.

Answer

Compressed Natural Gas (CNG) is considered a better fuel than coal/ petroleum, because it is less polluting and produces fewer undesirable gases than the fossil fuels.

17. Question

Now-a-days water bottles and lunch boxes are made from agricultural products like fruit pulp. These are called _____ .

Answer

Bio-plastics

Bio-Plastics are Plastics made from plants including corn, potatoes or other agricultural products.

1. Question

Which of the following groups contain only bio-degradable items?

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D. Cake, wood and glass

Answer

Group (i) contains only bio-degradable items, these are the substances which can be broken down by biological processes or microbial action.

Plastics and glass are non-biodegradable substances, which are there in other options, hence eliminated.

Part-B

1. Question

Classify the following into producers, consumers, decomposers.

i) butterfly

ii) grass hopper

iii) calottes

iv) snakes

v) shoe flower

vi) nitrobacteria

Answer

Producers	Shoe flower
Consumers	Butterfly, Grasshopper, calottes
Decomposers	Nitrobacteria

Plants are producers. So, shoe flower are producers. Butterfly, Grasshopper and Calottes are dependent on plant or their products. So, they are consumers. While several bacteria and fungi form the decomposers. So, nitrobacteria are decomposers.

2. Question

Living organisms adapt themselves according to their habitat.

Match the following: -

a. fish	wings
b. camel	hard skin
c. frog	fins
d. birds	hind limbs with web

Answer

The correct matchings are as shown below:

a. fish	Fins
b. camel	Hard skin
c. frog	hind limbs with web
d. birds	wings

Fishes live in water so adapt in it they have fins which helps them move in any desired direction and with optimum speed. The skin of the camel is doubly thick and contains water-storing osmotic cells to conserve water, as they live in deserts. Frogs have hind limbs with web which help them swimming in water and jumping over land. While birds have wing which helps them in flying from one place to another in search of food, water etc.

3. Question

Fill in the blanks

i) Animals give out _____ through respiration.

ii) In the presence of sunlight, plants prepare _____.

Answer

i) Animals give out **carbon dioxide** through respiration.

ii) In the presence of sunlight, plants prepare **carbohydrate**.

4. Question

Bacteria and fungi are responsible for the decay of dead plants and animals. Decaying matter is recycled to grow plants. What do we call this?

Answer

Bio-Geo chemical cycle.

Minerals are restored to the soil by the decomposition of dead and decaying materials by saprophytic organisms such as bacteria and fungi. This process is called Bio-Geo chemical cycle.

5. Question

Fill in the blanks with suitable answers from those given in the brackets.

(harmful, heavy metals, carbon dioxide, sulphur particles)

Generation of waste products which contain Mercury, Uranium, Thorium, Arsenic, and other _____ are _____ to human health and environment. _____ present in the coal will cause acid rain and the release of _____, a greenhouse gas, causes climate change and global warming.

Answer

Generation of waste products which contain Mercury, Uranium, Thorium, Arsenic, and other **metals** are **harmful** to human health and environment. **sulphur particles** present in the coal will cause acid rain and the release of **carbon dioxide**, a greenhouse gas, causes climate change and global warming.

6. Question

Depict a food chain by placing the following organisms in the correct trophic levels:

(snake, grass, eagle, frog, grasshopper)

Answer

The correct order of food chain of given organisms is as given below:

Grass → Grasshopper → frog → snake → eagle

It says, grass will be eaten by grasshopper, grasshopper will be eaten by frog, frog will be eaten by snake and snake will be eaten by eagle.

7. Question

Show an aquatic food chain using the following organisms.

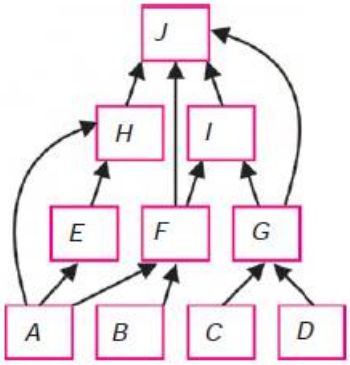
(Small fish, Phytoplanktons, Kingfisher, Zooplanktons)

Answer

Phytoplanktons → Zooplanktons → Small fish → Kingfisher

8 A. Question

Observe the following food web:



(i) Find out the wrong statement:

a) ‘A’ is a producer

b) ‘F’ is a herbivore

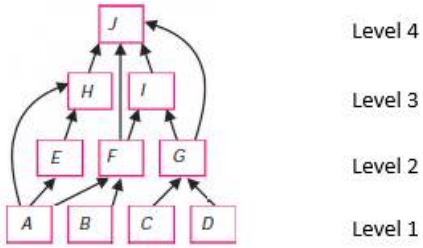
c) ‘H’ is an omnivore

d) ‘I’ is a climax carnivore

Answer

d) is the wrong statement.

We first divide the various organisms from bottom to top in various levels as shown below



Now, we see that organisms in the Level 1 are not shown to be dependent on any other organism. So, we can assume them to be producers or plants.

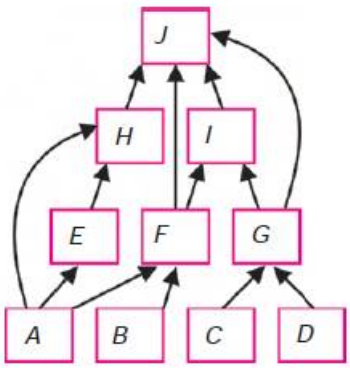
Level 2 organism are shown to be dependent on plants of Level 1. So, they are herbivores (or consumers).

At Level 3, the organisms are shown to consume either level 1 (plants) or level 2 (herbivores) or both organism. So, at Level 3 ‘H’ is omnivore and ‘I’ is carnivore.

At Level 4, the organism J is shown to consume level 2 (herbivores) as well as level 3 (omnivores) organisms. Implies J only eat animals. So, J is climax carnivore.

8 B. Question

Observe the following food web:



Find out how many food chains are present in the above food web.

Answer

There are ten food chain possible out of the given food web. They are as shown below:

(i) A → H → J

(ii) A → E → H → J

(iii) A → F → J

(iv) A → F → I → J

(v) B → F → J

(vi) B → F → I → J

(vii) C → G → I → J

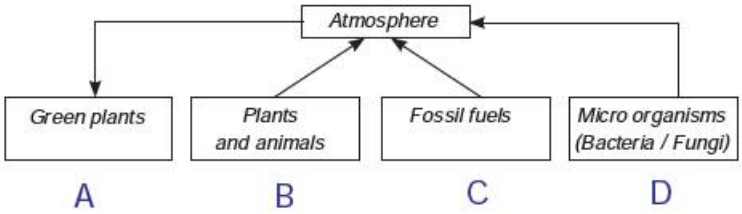
(viii) C → G → J

(ix) D → G → I → J

(x) D → G → J

9. Question

Observe the following Bio-geo chemical cycle.



i) Mention the nutrient in the given cycle.

ii) Write the activities from ‘A’ to ‘D’.

Answer

(i) The nutrient in the given cycle is carbon.

(ii) The various activities taking place in the given cycle are:

A: Photosynthesis

Reasoning: Green plants take carbon dioxide from atmosphere for photosynthesis.

B: Respiration

Reasoning: Plants and animals exhale carbon dioxide during respiration process.

C: Combustion

Reasoning: Fuels need oxygen for their combustion, which they get from the atmosphere.

D: Decomposition

Reasoning: Micro-organisms decompose dead organisms and the gases produced so are released into the atmosphere.

10. Question

Study the food chain below, correct it and convert it into a pyramid of energy.

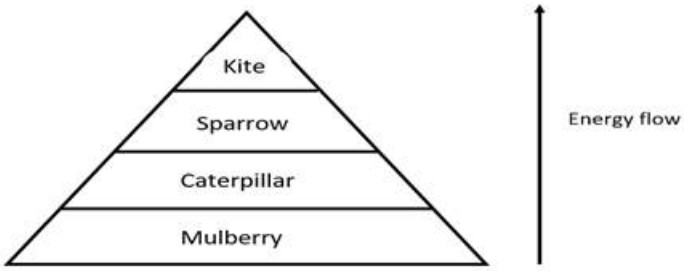
Mulberry → Sparrow → Caterpillar → Kite

Answer

Energy flow from producers towards consumers of different levels in the food chain. The corrected food chain is as given below:

Mulberry → Caterpillar → Sparrow → Kite

The equivalent energy pyramid is as shown below:



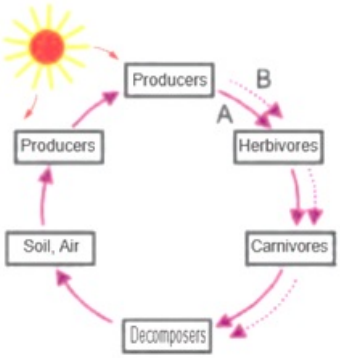
11. Question

Study the illustration and answer the questions:

i) Which line (A or B) represents the flow of energy?

Why do you say so?

ii) Give an example of a decomposer.



Answer

(i) Line B represents the flow of energy.

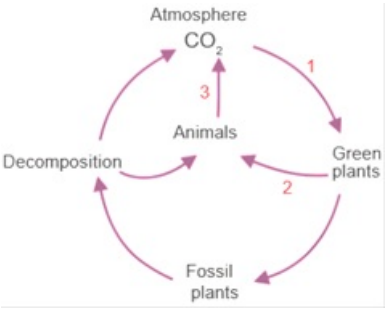
Reason: The energy flow in a food chain is unidirectional and from producers to consumer. The reverse is not possible, but the line A represents a cyclic flow. So, line A cannot represent energy flow.

(ii) Fungi and bacteria are examples of decomposer.

12. Question

i) Name the processes noted as No. 1 and 3.

ii) Define process 1.



Answer

(i) Process 1 represents Photosynthesis and Process 2 represents respiration

Reason:

In process 1 as shown in the figure, green plant is taking carbon dioxide from the atmosphere, which is nothing but an event of photosynthesis. While in process 2 animal is releasing carbon dioxide into the atmosphere in the process of respiration.

(ii) Process 1 is photosynthesis. Photosynthesis is defined as the process by which green plants synthesise

their food by taking carbon dioxide from air and water from ground in the presence of sunlight.

Part-C

1. Question

i) Classify the following substances – wood, paper, plastic and grass.

ii) Give a detailed account of your classification.

Answer

(i) The given substances can be classified as biodegradable and non-biodegradable as shown below:
Biodegradable : wood, paper and grass non-Biodegradable : Plastic

(ii) Substances which can be broken down by biological processes or microbial action are known as Biodegradable. Wood, paper, leaves, cotton etc. are some examples of biodegradable substances. While substances which are not broken down by biological processes or microbial action are known as Non-biodegradable. Plastic, cans, tyres, paints etc. are some examples of Non-biodegradable substances.

2. Question

In your locality people are affected due to water scarcity. What measures will you take to deal with the problem of water scarcity?

Answer

In the case of water scarcity, I will take the following measures to deal with the situation:

(i) Always keep the water filled container covered in order to prevent any evaporation.

(ii) For washing vehicles, I'll use recycled water.

(iii) For gardening I will use water which was used to wash vegetables.

(iv) I will harvest rain water by making tank in the yard and connecting it to the roof trough pipelines.

(v) I will persuade authority to install a small reverse osmosis plant to purify water of river or ocean to meet the need of water.

(vi) Using every drop of water very carefully and not wasting it.

3. Question

We are surrounded by smoke. Is this situation good for our health? Give reason.

Answer

No, this situation is not good for our health.

Reasons:

1. Smoke content above a particular level can causes allergy and irritation to the eyes and throat. High smoke content in air can also cause upper respiratory infections such as bronchitis and pneumonia.

2. Some contains pollutants. When air containing such pollutants are inhaled may lead to serious health problems affecting the functioning of lungs and the respiratory system.

3. Smoke causes serious respiratory diseases, heart disease, stroke and lung cancer etc.

4. Smoke leads to difficulty in breathing, wheezing, coughing, asthma and worsening of existing respiratory and cardiac diseases.

4. Question

List out the harmful effects of burning coal.

Answer

Harmful effects of burning coal are as given below:

(1) Burning coal releases carbon dioxide in air, which is a greenhouse gas and leads to global warming.

(2) Coal burning also releases oxides of sulphur in air, which contribute to the process of Acid rain.

(3) The smoke from burning coal leads to increased unwanted particulate matter in the environments leading to air pollution.

(4) Harmful metals such as mercury, lead and arsenic are also released into environment from burning of coal, which when inhaled can lead to serious health problems such as damage of nervous system, immune system and digestive system. It is a serious threat to the development of a child.