Answers – Activity Sheet– March 2022

Q.1. (A) Choose the correct option. **[5]**

i. c. Bones contain **ossein** amino acid.

ii. d. Giant squirrel is an example of **indeterminate** threatened species.

iii. a. Human being belongs to **Mammalia** class.

iv. b. Organs like **heart** can be donated after death.

v. d. Volcano is a **geological** disaster.

(B) Answer the following. **[5]**

i. Find the odd one out.

Earthquake, Flooding, Tsunami, War.

Ans. War. It is man-made international disaster, whereas rest all are geophysical geological disasters.

ii. State true or false.

Oxidation of proteins is carried out in aerobic respiration.

Ans. False. Oxidation of glucose is carried out in aerobic respiration.

iii. Complete the correlation.

Western Ghat : Asiatic Lion : : Sunderban sanctuary: _____

Ans. Tiger. Sunderban Sanctuary is reserved for tigers, and Gir National Park located in the Western Ghats is reserved for Asiatic lions.

iv. Which type of fuel is used in thermal power plant?

Ans. Coal is used in thermal power plant.

v. Identify the picture and name it.

Ans. Laughter club is shown in the picture.

Q.2. (A) Give scientific reasons. (Any two) [4]

i. Cell division is one of the important properties of cell and organisms.

Ans.

(a) A new organism is formed from an existing one (as in Amoeba or Paramoecium) by cell division.

(b) In a multicellular organism, cell division, i.e. mitosis is necessary for an organism to grow for replacement of damaged cells, wound healing, formation of blood cells, etc.

(c) Some unicellular organisms use mitosis as their form of reproduction.

(d) Meiosis is required for gamete production and ultimately for reproduction.

Hence, cell division is an important property of cells and organisms.

ii. Cockroach belongs to phylum Arthropoda.

Ans. Cockroach belongs to phylum Arthropoda as it shows the following characteristics of arthropods:

(a) It has jointed appendages.

(b) Its body is triploblastic, eucoelomate, segmented, and bilaterally symmetrical.

(c) It has chitinous exoskeleton around its body.

(d) It is found in all types of habitats.

(e) It is unisexual.

iii. Power generation plant based on natural gas is eco-friendly.

Ans.

(a) Natural gas does not contain sulphur.

(b) Hence, burning of natural gas does not release sulphur dioxide gas which is harmful to the environment and human beings.

(c) Thus, burning of natural gas results in less pollution.

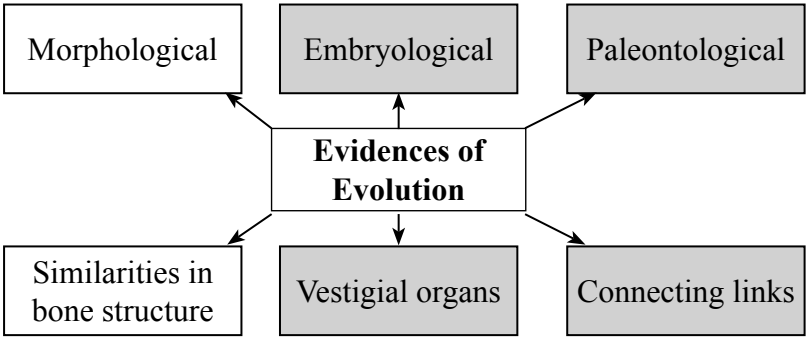
(d) Therefore, power generation plants based on natural gas are more eco-friendly than coal-based or nuclear-based power plants.

(B) Answer the following questions. (Any three) [6]

i. Complete the following diagram.

(Refer Mar 2022 question paper for the incomplete chart)

Ans.



ii. What do we learn from the story of Jadav Molai Payeng?

Ans.

(a) Jadav Molai Payeng has been a forest worker since the age of 16 years. He was an active participant in the Social Afforestation Project started by the Social Forestry Department in 1979.

(b) As a result of his continuous work of planting and caring for trees, a once barren area witnessed a forest cover over 1,360 acres of land.

(c) From his life, we learn that we can achieve a noble cause if we are determined and committed to it.

iii. Distinguish between sexual reproduction and asexual reproduction. (*two points*)

Ans.

Sexual reproduction	Asexual reproduction
1. Reproduction that takes place with the help of germ cells or sex cells is called sexual reproduction.	1. Reproduction that occurs with the help of somatic cells is called asexual reproduction.
2. Male and female parents are necessary for sexual reproduction.	2. Only one parent is necessary for asexual reproduction.
3. This type of reproduction occurs through mitosis and meiosis.	3. This type of reproduction occurs through mitosis only.
4. New individual formed by this method is generally different from the parents.	4. New individual formed by this method is identical to the parent.
5. Sexual reproduction occurs by the union of male and female gamete to produce a zygote.	5. Asexual reproduction occurs in different individuals by methods like binary fission, multiple fission, budding, fragmentation, regeneration, vegetative propagation, and spore production.

[*Note: Students can write any two points*]

iv. Define genetically modified crops and give any two examples.

Ans.

(a) Crops developed with desired characters by integrating a foreign gene with their genome are called genetically modified crops. These are high-yielding varieties with resistance to diseases, alkalinity, weeds and stresses like cold and drought.

(b) Examples:

(1) **BT cotton** – A gene has been isolated from the bacterium, *Bacillus thuringiensis*, and integrated with the gene of cotton.

Due to this, the toxin which is fatal for bollworm is produced in cotton leaves and bolls. The bollworm feeding on them dies as its alimentary canal is destroyed by the toxin.

(2) **BT brinjal** – BT brinjal variety is developed by using the gene isolated from *Bacillus thuringiensis*. This improved variety of brinjal kills the pest in same way as the BT cotton does.

(3) **Golden rice** – A gene synthesizing vitamin A (beta carotene) has been introduced in this variety of rice. As compared to the normal variety, this variety, which has been developed in 2005, contains 23 times more amount of beta carotene.

(4) **Herbicide-tolerant plants** – Weeds always affect the growth of the main crop. Besides, herbicides that are used to destroy weeds affect the main crop too. Hence, herbicide-tolerant varieties of crops are being developed which enable to selectively destroy weeds.

[*Note: Students can write any two examples.*]

v. What are vitamins? Write two types of vitamins.

Ans.

(a) Vitamins are a group of heterogeneous compounds of which, each is essential for proper operation of various processes in the body.

(b) There are six types of vitamins, e.g. A, B, C, D, E and K.

(c) They can be divided into 2 groups –

(1) fat-soluble vitamins, e.g. vitamins A, D, E and K and

(2) water-soluble vitamins, e.g. vitamins B and C.

Q.3. Answer the following (Any five) **[15]**

i. Explain the meaning of the following symbols:

(a)  (b)  (c) 

Ans.

(a) This is a symbol of a Tidyman. It means we should not litter and throw waste in the dustbin.

(b) This symbol shows a cycle. It indicates 'Save fuel'. It means

- We should save fuel and reduce the emission of greenhouse gases that cause pollution and climate change.

(c) This is 'Save water' symbol. This symbol is used to indicate 'save water'. It is our duty to ensure that water is conserved, and not wasted.

ii. Write any *three* characteristics of class reptilia.

Ans. Characteristics of class Reptilia:

(a) Animals belonging to class Reptilia are cold blooded (poikilothermic) animal.

(b) They creep on the land as their body cannot be lifted up.

(c) Their skin is dry and scaly.

(d) Neck is present between head and trunk.

(e) Digits are provided with claws.

(f) External ear is absent.

(*Note: Students can write any three characteristics.*)

iii.

a. Which substance is used to produce cheese?

b. Which enzyme was used earlier for cheese production?

c. Which enzyme is used to produce vegetarian cheese?

Ans.

a. Cow milk is used to produce cheese.

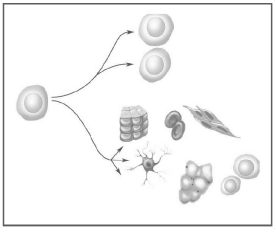
b. Earlier, an enzyme, called rennet, obtained from the alimentary canal of cattle was used to produce cheese.

c. Enzyme protease obtained from fungi is used to produce vegetarian cheese.

iv. a. Which process is shown in the given diagram?

b. What is the importance of this process?

c. Which organs can be transplanted by this process?



Ans.

a. Stem cell therapy is shown in the given figure.

b. Importance of stem cell therapy:

(a) Stem cells are used to replace the dead cells in case

of conditions like diabetes, myocardial infarction, Alzheimer's disease, Parkinson's disease, etc.

(b) They are also used to produce blood cells required in conditions like anaemia, thalassemia, leukemia, etc.

(c) In case of failure of organs like kidney and liver, those can be produced with the help of stem cells and transplanted.

c. Organs like kidney and liver can be transplanted by this process.

v. What is meant by disaster? Write any two examples of each natural and man-made disaster.

Ans. A sudden event that leads to huge loss of life and property is called a disaster.

(a) Examples of natural disasters: Earthquake, volcano, tsunami

(b) Examples of man- made disasters: Bomb blast, war, terrorism

vi. Write the objections raised against Darwin's theory of natural selection.

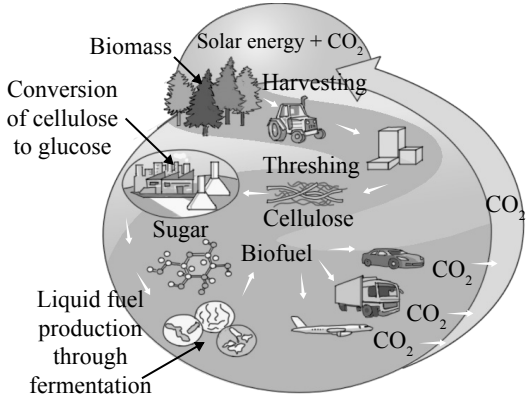
Ans. Darwin's theory of natural selection was widely accepted for long duration. However, some objections were raised against the theory. Some of the main objections are-

(a) Natural selection is not the only factor responsible for evolution.

(b) Darwin did not mention any explanation about useful and useless modifications.

(c) There is no explanation about slow changes and abrupt changes.

vii.



a. Which process is shown in the above given picture?

b. Give two examples for liquid fuels and solid fuels obtained by this process.

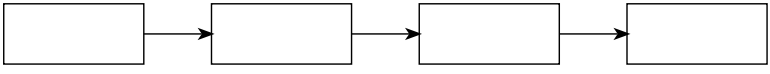
Ans.

a. The process shown in the figure is of biofuel production.

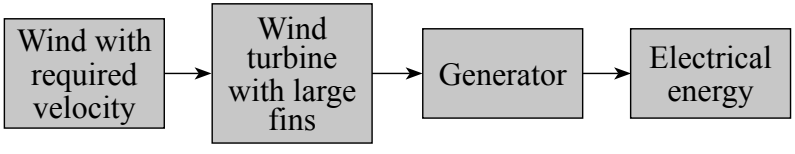
b. Solid fuels such as coal, dung, and crop residue and liquid fuels such as vegetable oils and alcohol are obtained by biofuel production.

viii.

a. Complete the stages in electric generator using wind energy.



Ans.



b. Write the limitations in an electric generator using wind energy.

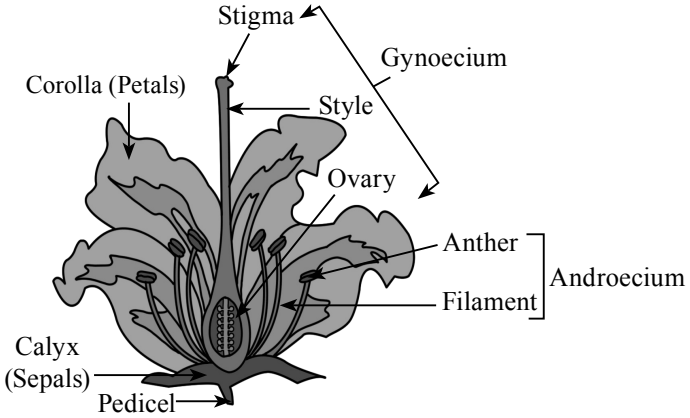
Ans. A wind-turbine is used to convert kinetic energy of wind to electrical energy. The blades of the turbine rotate as the wind strikes the blades. The rotating blades drive the turbine and the turbine in turn drives the generator to generate electricity. Thus, the generation of electricity using wind energy depends on the velocity of the wind at the site of installation of the wind-turbine. However, the velocity of wind necessary to drive the generator to produce electricity is not available at all locations. The velocity of wind is usually high on sea shores than at other places. In that sense, there are limitations on the generator to produce electricity using wind energy.

Q.4. Answer any *one* of the following: [5]

i.

a. Sketch and label the essential and accessory whorls of flower.

Ans.



b. What is pollination?

Ans. The process of transfer of pollen grains from the anther to the stigma is called pollination.

c. **Give any two examples of agents of pollination.**

Ans. Agents of pollination: abiotic agents such as wind, water and biotic agents such as insects and other animals.

ii. What will you do?

a. You are spending more time on internet.

Ans.

(a) I will try to reduce the time I spend on the Internet, cell phone, and games. For this, I will indulge in other activities like singing, dancing, meditation, or playing a sport.

(b) I will do so because –

1. Spending excessive time on the Internet and cell phone is like an addiction. It may make me self-centred and less sensitive towards others and thus hinder me from developing harmonious relationship with others.
2. It may also cause physical problems like tiredness, headache, insomnia, forgetfulness, joint pains, etc.
3. Problems in vision may also arise due to radiation of cell phones.

b. Child of your neighbour is addicted to tobacco chewing.

Ans.

(a) I will make the child aware of the health risks associated with chewing of tobacco.

(b) I will show him pictures of effects of tobacco addiction.

(c) I will try to help the child to get out of this addiction, because it may permanently damage his/her nervous/muscle system/ heart, etc. Tobacco can even cause cancer.

c. Your sister has become incommunicative.

Ans.

(a) I will start engaging her in activities with me, so that her mind is engaged.

(b) Then, I will help her to start talking. I won't push her too much, but will encourage her slowly to talk about her feelings, by being very patient and not making her uncomfortable.

(c) Being incommunicative and preferring to stay alone is a sign of mental stress. So, I will try to relieve her of the stress she is facing

d. You have to use free space around your home for good purpose.

Ans. The free space around my house can be utilized for good purpose in many ways as follows:

(a) I will start a small library with lots of books and good magazines. Children can come, read, and spend their time fruitfully.

(b) I can convert that space into a play area. I can play various sports with my friends, which is a good way to keep ourselves occupied and free from addiction, stress, and other social illnesses.

(c) I can convert it into a small garden and grow some plants and take care of those plants.

e. Your brother studying in XII has developed the stress.

Ans.

(a) Competition is one of the main factors contributing to stress. I will advise my brother to relax a bit, and take breaks between studies; to take a walk, watch a favourite show or listen to songs so that he gets relief from stress.

(b) At the same time, I would also motivate him to put in his best effort, telling him that marks are important, but what is more important is the effort one puts in.

(c) I will advise him to do meditation for improving his concentration in studies.

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