



**Maharashtra Board Class 10 Science and Technology Part II
Solved Previous Year Question Paper -2022**

SECTION B

Best Approach to Attempt a Test

- Go through all the questions, quickly.
- Mark the easy questions you are sure of solving and attempt them first.
- Pay attention to keywords.
- Solve questions, part by part.

Q.1 Bones contain _____ amino acids.

- a. Melanin
- b. Haemoglobin
- c. Ossein
- d. Insulin

Ans: Ossein

Q.2 Giant squirrel is an example of a/an _____ threatened species.

- a. Endangered
- b. Rare
- c. Vulnerable
- d. Indeterminate

Ans: Indeterminate

Q.3 Answer the following:

- a. Find the odd one out: Earthquake, Flooding, Tsunami, War
- b. Complete the correlation: Western ghat: Asiatic lion : : Sunderban sanctuary : _____

Ans: Find the odd one out: Earthquake, Flooding, Tsunami, **War**

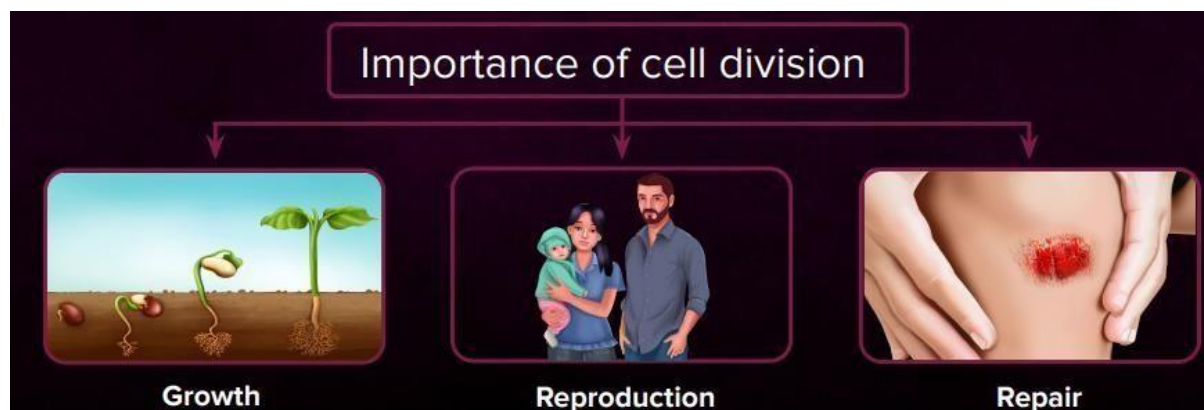
Complete the correlation: Western ghat: Asiatic lion : : Sunderban sanctuary : **Tiger**

Q.4 Give scientific reasons: (4 marks)

A. Cell division is one of the important properties of cell and organisms. (2 marks)

Cell Division and Its Importance

Cell division is the process by which a parent cell divides, giving rise to two or more daughter cells.



- Cell division is the property due to which a new organism (unicellular) is formed from existing ones.
- In asexual reproduction, mitosis helps to give rise to new generation while in sexual reproduction, meiosis helps to form haploid gametes.
- It is an important aspect of wound healing, formation of blood cells, and other important life processes.

Hence, cell division is one of the important properties of cell and living organisms.

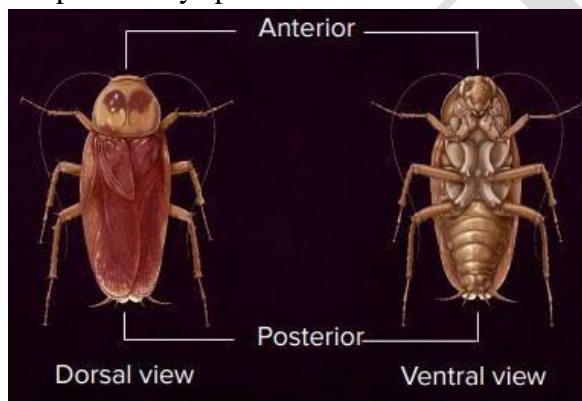
Q.5 Give scientific reasons:

B. Cockroach belongs to phylum Arthropoda (2 marks)

Cockroach belong to phylum Arthropoda and class Insecta.

Scientific reasons for placement of Cockroach in the phylum Arthropoda:

- The body is covered by chitinous exoskeleton.
- Jointed appendages present, three pairs of walking legs and two pairs of membranous wings.
- Body is eucoelomate, triploblastic and bilaterally symmetrical.
- Respiration by spiracles and tracheal tubes.



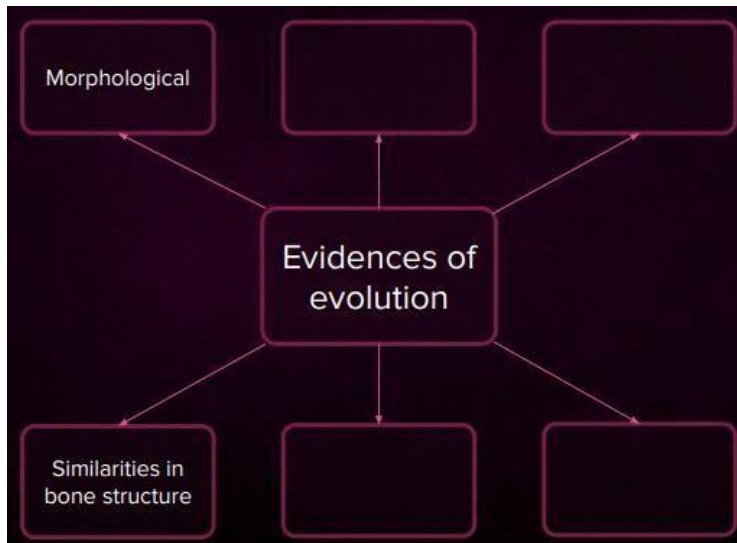
Q.6 Give scientific reasons:

C. Power generation plant based on natural gas is eco-friendly (2 marks)

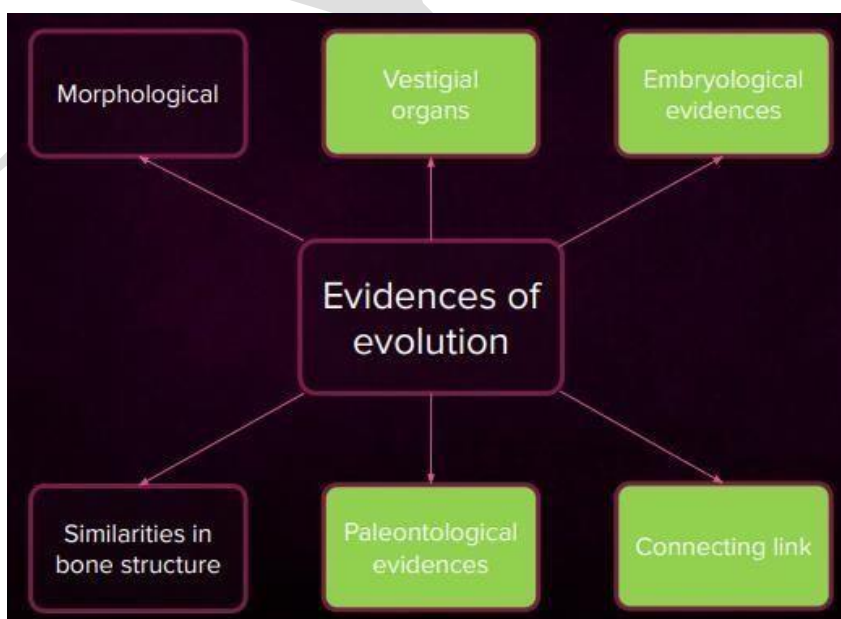
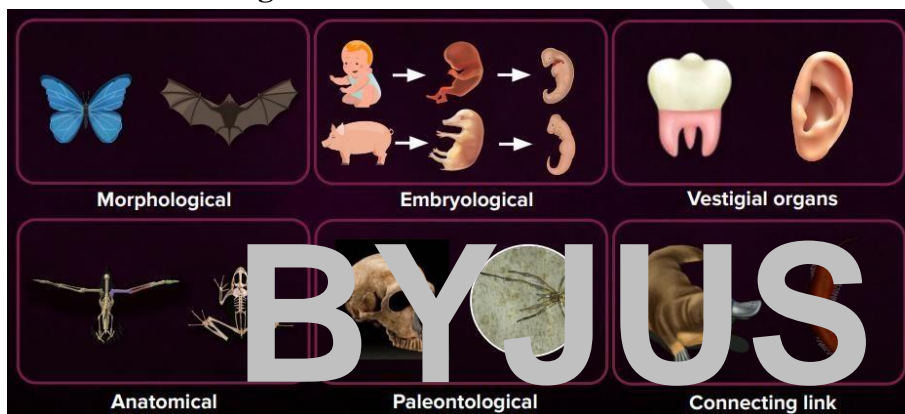
Power generation plant based on natural gas is eco-friendly because:

- Natural gas emits 50-60 percent less carbon dioxide in power plants than regular oil or coal power plants.
- It is less polluting as there is no sulphur in natural gas. As a result, burning produces less pollution.
- It also emits greenhouse gases into the atmosphere with a shorter life cycle. As a result, it is comparatively environment friendly.

Q.7 Complete the following diagram. (2 marks)



Evidences of Biological Evolution



Q.8 What are vitamins? Write two types of vitamins. (2 marks)

Vitamins

- For normal cell functioning, growth and development

	Sources	Deficiency diseases
Vitamin A	Carrot, papaya, leafy Vegetables, etc.	Night blindness
Vitamin B complex	Milk, meat, eggs, cereals, etc.	Beriberi, pellagra, dermatitis, pernicious anaemia
Vitamin C	Amla, lemon, Orange, etc.	Scurvy
Vitamin D	Synthesised by the skin in sunlight, eggs	Rickets

Vitamins

	Sources	Deficiency diseases
Vitamin E	Meat, milk, vegetable oil, etc.	Sterility
Vitamin K	Leafy vegetables, soybeans, milk, etc.	Delayed blood clotting

Vitamins are a group of heterogeneous compound essential for proper functioning of the body. Vitamins are organic compounds found in natural foods which are required for normal growth and maintenance of the body.


Vitamins are of two types

Fat soluble vitamins: Vitamin A, D, E and K are stored in adipose tissues and hence are called fat soluble vitamins.

Water soluble vitamins: Vitamin B and C must be supplied to our body through regular Diet.

9 .Define genetically modified crops and give any two examples. (2 marks)

Genetically Modified Crops

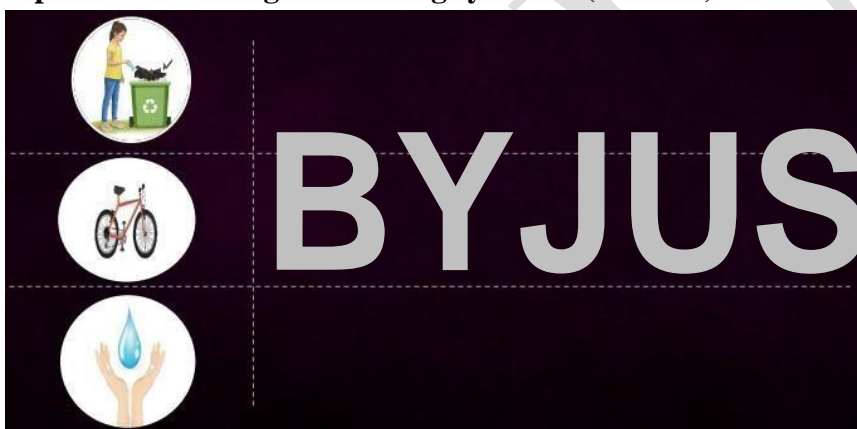
 <p>Bt Brinjal</p>	<p>Importance in agriculture</p>
 <p>Arctic apple</p>	<ul style="list-style-type: none"> Resistance to unfavourable weather condition Improved nutritive value Resistance to pests and insects Reduced loss of crops

Genetically modified crops are the variety of crop plants produced by introducing a desired gene into the plant genome that provides the desired characteristics.

Examples: Bt cotton, Bt brinjal, Golden rice, etc.

Q.10 Answer the following questions.

Explain the meaning of following symbols: (3 marks)



	<p>Recycle: This symbol tells us to keep our wastes carefully. The garbage should not be thrown anywhere. But it should be properly managed.</p>
	<p>Renewable Energy: Use of bicycle means use of green energy. By riding on bicycle, we save on fossil fuel. It is the best eco-friendly, non-polluting vehicle.</p>
	<p>Save Water: This symbol is giving the message "Save Water". Sustainable use of water is necessary for a better future.</p>

Q. 11 Write any three characteristics of class Reptilia. (3 marks)

Characteristics of class Reptilia are:

- These are creeping and burrowing terrestrial animals with scales on their body.



- They are cold-blooded animals found in most of the warmer regions of the world.
- The skin is dry and rough, without any glands.

Q.12 Answer the following.

- 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?**

(3 marks)

Solution:

- A. Milk is used to produce cheese.
- B. The enzyme 'rennet' was used earlier for cheese production.
- C. Enzyme protease is obtained from fungi and this enzyme is used to produce vegetarian Cheese.

Q.13 What is meant by disaster? Write any two examples of each natural and man-made disaster. (3 marks)

A disaster is defined as a disruption on a massive scale, either natural or man-made, occurring in short or long periods. It can lead to human, material, economic or environmental hardships which can be beyond the bearable capacity of the affected Society.

Examples:

Natural disasters are flood, earthquakes, etc.
Man-made disasters are forest fires, war, etc.

Q.14 Write the objections raised against Darwin's theory of natural selection. (3 marks)

Theory of Natural Selection

Darwinian Theory of Evolution explains that evolution is the result of natural selection, and natural selection is biased by the inherited characteristics of organisms.

Darwin's Proposition:

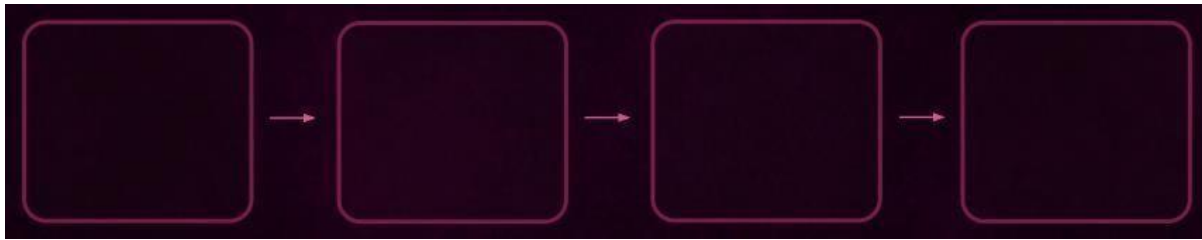
- Prodigality of reproduction
- Food and space are limited
- Struggle for existence
- Survival of the fittest
- Origin of new species

Darwin's theory of natural selection explains how genetic traits of a species may change over time.

Objections to Darwin's theory:

- Apart from natural selection, there are few more factors responsible for evolution.
- Any explanation about useful and useless modifications was not provided by Darwin.
- Causes of slow and abrupt changes was not explained by Darwin.

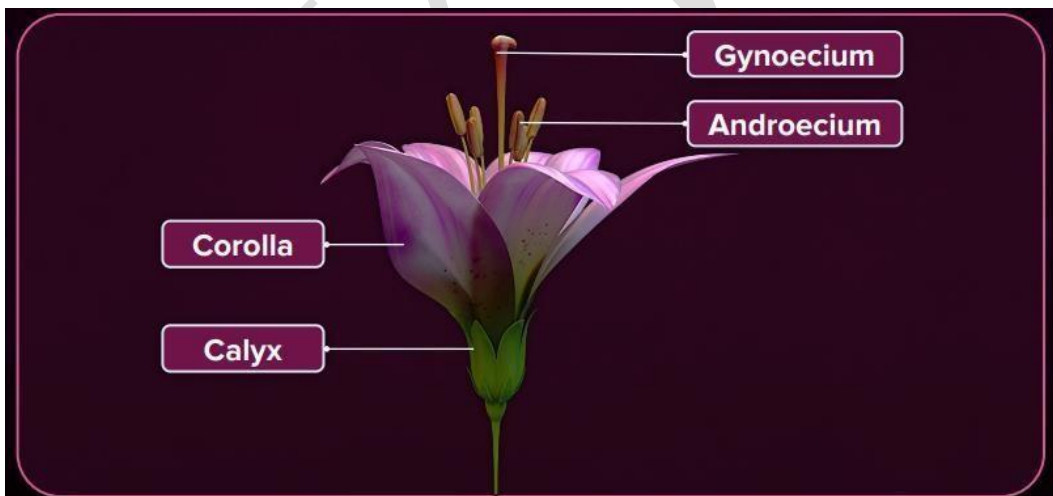
Q.15 Complete the stages in electric generator using wind energy. (2 marks)



Q.16 Write limitations in an electric generator using wind energy. (1 mark)

Limitations of an electric generator:

- The wind's speed is not constant and the required wind velocity is not available everywhere.
- It has a limited supply and is uncontrollable.
- Wind power has the limitation of producing no electricity when the wind is not r.



18. Q Answer the following questions.

What is pollination? (1 mark)

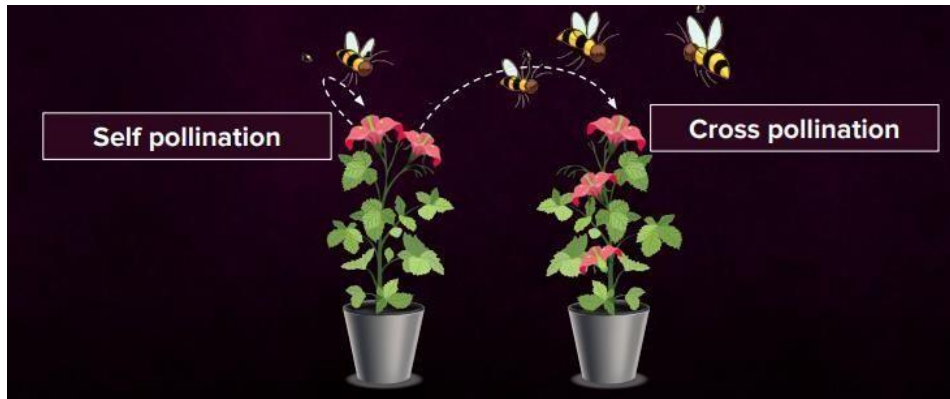
The transfer of pollen grains from anther to stigma is called pollination.

It is of two types:

Self-pollination: Transfer of pollen grains from the anther to the stigma of the same flower or another flower of the same plant. Cross-pollination: Transfer of pollen grains from the anther to the stigma of the flower present on two different plants.

Pollination

Pollination is a biological process in which the pollen grains are transferred from an anther (male part of a flower) to the stigma (female part of a flower).



19. Q Answer the following questions.


Give any two examples of agents of pollination. (1 mark)

Examples of agents of pollination are:

Insect pollination: Bees are the most common insect pollinators.

Bird pollination: Plants are pollinated by birds like the hummingbird.

Agents of Pollination

 Entomophily	 Anemophily
 Hydrophily	 Ornithophily