પુ॰ના International School

Shree Swaminarayan Gurukul, Zundal

Class -VIII

Sub - Science

Sample Plan

Year- 2020-21

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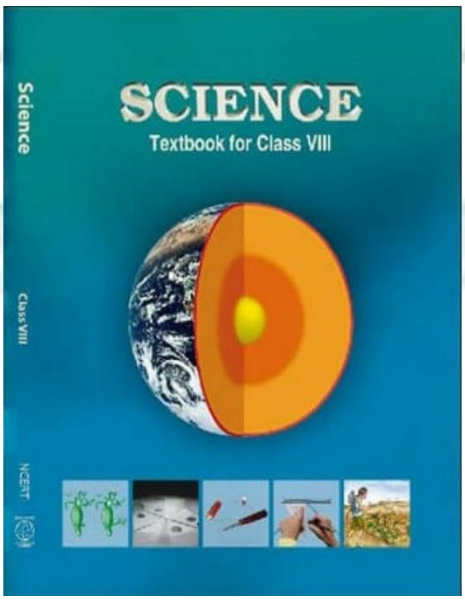

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Chapter – 5
Coal and Petroleum

- **Define the terms -**

1. Natural Resources: Resources include everything provide by the nature. They form the wealth of a country.

Types of Natural Resources:
Inexhaustible: There are some resources that are present unlimited in nature and will not be exhausted even if used continuously. Example: Sunlight, Air.
Exhaustible: These resources are limited and can soon get exhausted because of their excessive use. Example: Forests, wildlife, minerals, coal, petroleum, etc.

2. Refining: Petroleum is mixture of various constituents such as petroleum gas, petrol, diesel, lubricating oil, paraffin wax, etc. Refining is the process of refracting the various constituents / fractions of petroleum. It carried out in a petroleum refinery.

3. Natural Gas: A very important fuel as it easy to transport through pipes and can be compressed and stored under high pressure as Compressed Natural Gas. It causes no pollution and has high calorific value.

- **Extra Questions:-**
- **Very short Answer Questions:-**

1. What does CNG stand for and why is it considered to be a better fuel than petrol?

Ans. CNG stands for Compressed Natural Gas. It is considered to be a better fuel because it creates less pollution on heating or burning..

2. Name the petroleum product used as fuel for stoves, lamps and jet aircrafts.

Ans. Kerosene is used as fuel for stoves, lamps and jet aircrafts.

3. Write two important uses of coke.

Ans. It is used for the manufacture of steel and also in extraction of many metals.

- **Short Answer Questions:-**

1. Some natural resources are given in a box. Classify them into the exhaustible and inexhaustible natural resources.

air, coal, natural gas, sunlight, petroleum, minerals, forests, oxygen.

Ans. Exhaustible natural resources are coal, natural gas, petroleum, minerals, forests. Inexhaustible natural resources are air, sunlight, oxygen.

2. Write the characteristics and some important uses of coal.

Ans. Coal is black in colour and hard as stone. It is one of the fuels used to cook food. Earlier it was used in railway engines to produce steam to run the engine. It is used as fuel in thermal power plants to produce electricity and in various other industries.

- **Answer in Detail -**

1. Write some important uses of the various constituents of petroleum.

i. Petroleum gas in liquid form (LPG) — used as fuel for home and industry.
ii. Petrol — used as fuel for automobile and aviation.
iii. Kerosene — used as fuel for stoves, lamps and for jet aircrafts.
iv. Diesel — used as fuel for heavy motor vehicles, electric generators.
v. Lubricating oil — used for lubrication
vi. Praffin wax — used in ointments, candles, vaseline etc.
vii. Bitumen — used in paints and road surfacing.

2. Coal reserves are said to be enough to last for another hundred years. Do you think we need to worry in such case? Why or why not?

Ans. Yes, we do need to worry towards this threat looming large because coal is needed in our day-to-day life and its not possible to make it again on earth .

- **Textual Exercise:-**

1. What are the advantages of using CNG and LPG as fuels?

Ans. The advantage of using CNG and LPG are as follows:

1. CNG and LPG burn easily.
2. CNG and LPG give a lot of heat energy when burnt.
3. CNG and LPG can be transported easily through pipelines.
4. CNG and LPG are clean fuels and they do not release smoke when burnt.

2. Name the petroleum product used for surfacing of roads.

Ans. A petroleum product 'Bitumen' is used for surfacing of roads.

3. Describe how coal is formed from dead vegetation. What is this process called?

Ans. About 300 million years ago the earth had dense forests in low lying wetland areas. Due to earthquakes, floods and volcanic eruptions, these forests got buried under the soil. As more soil deposited over them, they were compressed. The temperature also raised as they sank deeper and

deeper. Due to high temperature and lack of oxygen dead plants inside the earth got slowly converted to coal. This process of coal formation is called carbonization.

4. Fill in the blanks.

(a) Fossil fuels are _____, _____, and _____.

(b) Process of separation of different constituents from petroleum is called_____.

(c) Least polluting fuel for vehicle is _____.

Ans.

(a) Coal, Petroleum and Natural gas.

(b) Refining

(c) CNG

5. Tick true/False against the following statements.

(a) Fossil fuels can be made in the laboratory . F

(b) CNG is more polluting fuel than petrol. F

(c) Coke is almost pure form of carbon. T

(d) Coal tar is a mixture of various substances. T

(e) Kerosene is not a fossil fuel. F

6. Explain why fossil fuels are exhaustible natural resources.

Ans. Fossils fuels are limited in nature, and are liable to be exhausted by different human activities. So fossil fuels are called as exhaustible natural resources.

7. Describe characteristics and uses of coke.

Ans. Characteristics:

i. Coke is tough.
ii. Coke is porous.
iii. Coke is black in colour.

Uses:

i. In the manufacture of steel.
ii. In the extraction of metals (as a reducing agent).

8. Explain the process of formation of petroleum.

Ans. Petroleum was formed from dead organisms that got buried in the sea millions of years ago. These dead bodies got covered with layers of sand and clay. Lack of air, high temperature, and high pressure transformed these dead organisms into petroleum and natural gas.

9. The following table shows the total power shortage in India from 1991-1997. Show the data in the form of a graph. Plot shortage percentage for the years on the Y-axis and the year on the X-axis.

Ans.

S.No.	Year	Shortage (%)
1	1991	7.9
2	1992	7.3
3	1993	8.3
4	1994	7.4
5	1995	7.1
6	1996	9.2
7	1997	11.5

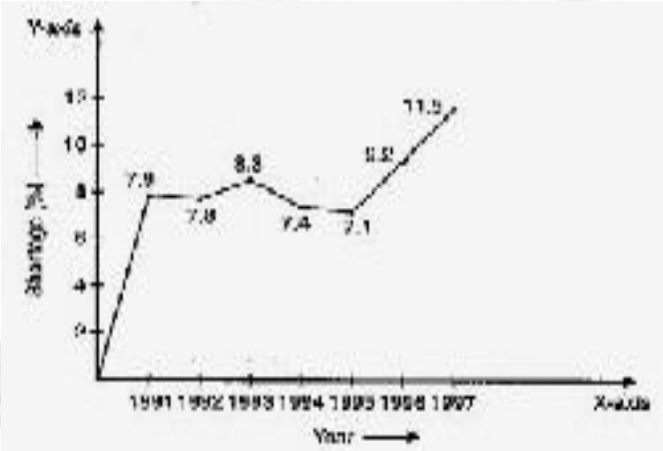


Fig. 5.1

Chapter – 6
Combustion and Flame

- **Define the terms -**

1. Combustion: The process of burning a substance in the presence of air (oxygen) and undergoes a chemical reaction to produce heat and light.
2.Ignition temperature is the lowest temperature at which a combustible substance catches fire.

Flame: It is a zone or burning vapour. The substances which vaporise during burning give flames. Example: Kerosene oil and molten wax.

4. Fuel: A **fuel** is any compound that has stored energy. This energy is captured in chemical bonds through processes such as photosynthesis and respiration. Energy is released during oxidation. The most common form of oxidation is the direct reaction of a **fuel** with oxygen through combustion.

Types of Fuels:
(i) **Solid Fuels:** Combustible substances which are solid at room temperature. Example: coal, coke, wood, charcoal, etc.
(ii) **Liquid fuels:** Volatile liquids which produce combustible vapour. Example: Petrol, kerosene, alcohol, diesel, etc.
(iii) **Gaseous fuels:** Combustible gases or mixture of combustible gases. Example: Natural gas, LPG, biogas, coal gas, etc.

- **Extra Questions:-**
- **Very short Answer Questions:-**

1. Why is the use of diesel and petrol as fuels in automobiles being replaced by Compressed Natural Gas (CNG) in big cities?

Ans. It is because CNG produces harmful products in very small amount and is a cleaner fuel.

2. If you hold a piece of iron wire with a pair of tongs inside a candle flame or a Bunsen burner flame, what will you observe? Will it produce a flame?

Ans. Iron wire will become red hot and glow. It will not produce a flame.

- **Short Answer Questions:-**

1. Cracker on ignition produces sound. Why?

Ans. Cracker bursts with the liberation of great amount of heat, light, gases and sound. This is known as explosion.

2. What do you understand by fuel efficiency?

Ans. The amount of heat energy produced on complete combustion of 1 kg of fuel is known as calorific value of the fuel expressed in a unit called kilojoule per kg (kJ/kg)

3. People usually keep Angethi/burning coal in their closed rooms during winter season. Why is it advised to keep the door open?

Ans. Due to insufficient availability of oxygen in the closed room carbon monoxide gas is produced which can kill persons sleeping in that room.

- **Answer in detail -**

1. Give two examples each for a solid, liquid and gaseous fuel along with some important uses.

Ans. Types of fuels
Solid fuel – Coal, wood, etc.
Liquid fuel – Kerosene oil, petrol etc.
Gaseous fuel – CNG, LPG etc.
Uses
Coal – coal has been used as an energy resource, primarily burned for the production of electricity and heat, and is also used for industrial purposes, such as refining metals.
Wood - Wood fuel can be used for cooking and heating, and occasionally for fueling steam engines and steam turbines that generate electricity. Wood may be used indoors in a furnace, stove, or fireplace, or outdoors in a furnace, campfire, or bonfire.
Kerosene oil – Fuel for stoves, lamps etc.
Petrol - For running vehicles.
LPG – Fuel for industry etc.

- **Textual Exercise:-**

1. List conditions under which combustion can take place.

Ans. Conditions under which combustion can take place are as follows:
a.Air or any other supply of oxygen.
b.Heat, to reach the,ignition temperature.
c.Fuel, maybe solid ,liquid or gas.

2. Fill in the blanks.
(a) Burning of wood and coal causes _____ of air.
(b) A liquid fuel, used in home is _____.
(c) Fuel must be heated to its _____ before it starts burning.
(d) Fire produced by oil cannot be controlled by _____.

Ans. Fill in the blanks.
(a) Burning of wood and coal causes **pollution** of air.
(b) A liquid fuel, used in home is **LPG**.

(c) Fuel must be heated to its **ignition temperature** before it starts burning.
(d) Fire produced by oil cannot be controlled by **water**.

3. Explain how the use of CNG in automobiles has reduced pollution in our cities.

Ans. CNG produces harmful products like sulphur dioxide,oxides of nitrogen etc. in very small amounts as compared to petrol and diesel. That is why pollution in our cities is reduced by using CNG. CNG is a cleaner fuel.

4. Compare LPG and wood as fuels.

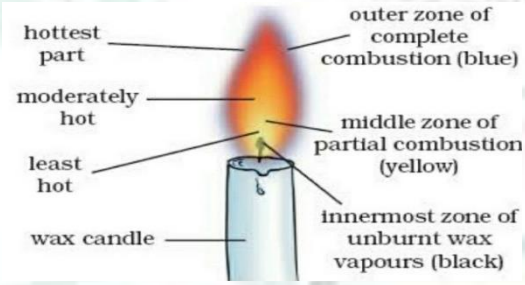
Ans. LPG burns easily and produces more heat in comparison to wood. Besides, it is a clean fuel, it does not produce fume and ashes as wood do. LPG can be stored and transported easily and conveniently.

5. Give reasons.
(a) Water is not used to control fires involving electrical equipment.
(b) LPG is a better domestic fuel than wood.
(c) Paper by itself catches fire easily whereas a piece of paper wrapped around an aluminium pipe does not.

Ans. (a) Water is not used to control fire produced by electrical equipment because water is a good conductor of electricity and may result in electric shock to the person extinguishing the fire.
(b) LPG is a substance which is readily available. It is cheaper than wood and burns easily in air at moderate rate. It does not produce fume and ashes as wood do. Moreover LPG can be stored and transported easily and conveniently.
(c) Paper catches fire easily because of its low ignition temperature, but when it is wrapped around an aluminium pipe, the ignition temperature does not meet as the heat supplied is transferred to the aluminium pipe leaving the paper unburnt.

6. Make a labelled diagram of candle flame.

Ans.



7. Name the unit in which the calorific value of a fuel is expressed.

Ans. The calorific value of a fuel is expressed in kilojoule per kg (kJ/kg).

8. Explain how CO_2 is able to control fires.

Ans. Carbon dioxide being heavier than oxygen covers the fire like a blanket. Since the contact between fuel and oxygen is cut off, the fire is controlled. Moreover it lowers down the temperature of the fuel. The added advantage of carbon dioxide is that in most cases it does not harm the electrical appliances.

9. It is difficult to burn a heap of green leaves but dry leaves catch fire easily. Explain.

Ans. Green leaves contain lot of water. So, when we try to burn green leaves, water contained in the leaves cools the combustible materials, so that its temperature is brought below its ignition temperature. This prevents the burning of green leaves.

In case of dry leaves, water is absent in them so burning process start as the temperature is raised above the ignition temperature and the leaves catch fire easily.

10. Which zone of a flame does a goldsmith use for melting gold and silver and why?

Ans. The goldsmith uses the outermost zone of a flame with a metallic blow pipe for melting gold and silver.

The flame in outermost zone has the highest temperature and provides sufficient amount of heat to melt gold and silver.

11. In an experiment 4.5 kg of a fuel was completely burnt. The heat produced was measured to be 180,000 kJ. Calculate the calorific value of the fuel.

Ans. Calorific value of a fuel = Total heat produced/total mass burnt.

Here, mass of fuel = 4.5 kg.

Heat produced = 180,000 kJ.

Therefore, calorific value of fuel = 180,000/4.5kg = 40,000 kJ/kg.

12. Can the process of rusting be called combustion? Discuss.

Ans. In rusting,iron using oxygen and water, gets oxidized and is rusted out. It is a slow process which does produce heat at a very slow rate. It includes iron as a fuel,oxygen and also produces heat much like a combustion process. So the process of rusting is somewhat similar to combustion.

13. Abida and Ramesh were doing an experiment in which water was to be heated in a beaker. Abida kept the beaker near the wick in the yellow part of the candle flame. Ramesh kept the beaker in the outermost part of the flame. Whose water will get heated in a shorter time?

Ans. The water of Ramesh's beaker will get heated in a shorter time because the outermost part of the flame is the hottest.

Chapter – 7
Conservation of Plants and Animals

- **Define the terms**

1.Flora: Different types of plants belonging to an area. Example: Silver ferns, sal, teak, mango, etc.

2. Fauna: All animals found in an area. Example: dog, frog, insects, bull, jackal, etc.

3. Endemic Species: Species of plants and animals found exclusively in a particular area. These are not naturally found anywhere else.

4. Extinct Species: Species of plants and animals which have already been lost. Example: Dodo, Indian cheetah, Pink-headed duck, etc.

5. Sanctuaries: Hunting prohibited areas set up by government are known as sanctuaries. These are only for the protection of wild animals. Example: Jaldapara in Madarihat (West Bengal), Keoladeo Ghana in Bharatpur (Rajasthan)

6.**Migration:** The regular, periodic, two way movements of birds and some animals from their place of residence to some other place along well defined routes. It is linked to seasonal factors, breeding, shortage of foods, etc. The Bharatpur bird sanctuary is known for the migratory birds.

- **Extra Questions:-**
- **Very short Answer Questions:-**

1. Mention any one action that you have undertaken to conserve trees.

Ans. Saving paper by using recycled paper/donating old books/spreading awareness about harmful effects of deforestation/any other relevant answer.

2. Can a forest regenerate naturally in a short period of time?

Ans. Reforestation can take place naturally by leaving the deforested area undisturbed for a long time. But this process takes a long time in terms of years, so we can say that forests cannot regenerate naturally in short period of time.

3. Name the first Reserve Forest of India.

Ans. Satpura National Park in Madhya Pradesh is the first Reserve Forest of India.

- **Short Answer Questions:-**

1. What is biodiversity?

Ans. Biodiversity a portmanteau of "biological diversity," generally refers to the variety and variability of life on Earth. It specifically refers to the variety of organisms existing in the Earth, their interrelationships and also their relationship with the environment.

2. Why are wildlife sanctuaries important for conservation of plants and animals?

Ans. A wildlife sanctuary is a space that is set aside exclusively for the use of wild animals, which are protected when they roam or live in that area. These are protected areas under government mandate where human activities like plantation, cultivation, grazing, falling of trees, hunting and poaching are prohibited completely.

3. Why are endemic organisms in greater danger of becoming extinct?

Ans. Endemic organisms are confined to a limited geographical area. They cannot adapt or live outside their natural habitat. Any disturbance to their habitat will adversely affect them. Henceforth they are in greater danger of becoming extinct.

- **Answer in Detail -**

1. Why should we save paper?

Ans. To prevent deforestation, save energy and water needed for manufacturing the paper. Chemicals used to manufacture the paper also cause pollution. Anything we can do to save paper will help reduce the amount of trash going into landfills, and it will also reduce energy use and pollution associated with manufacturing, transporting, and recycling new paper products.

Perhaps most importantly, when we save paper, we reduce the need to cut down trees to make new paper. Recycling of paper is good for the environment and it will save more trees. If we don't recycle and just throw it away, we have to cut down more trees to make more paper that would be unnecessary if we would just reuse the paper that we already have made.

Recyclable paper helps the environment because it stops a lot of used paper being put into waste dumps or burn, and also if one recycles paper it means manufacturers don't have to cut down more trees to make paper , hence making the process more eco-friendly.

- **Textual Exercise:-**

1. Fill in the blanks.

(a) A place where animals are protected in their natural habitat is called _____.
(b) Species found only in a particular area is known as _____.
(c) Migratory birds fly to faraway places because of _____ changes.

Ans. (a) A place where animals are protected in their natural habitat is called **wildlife sanctuary**.

(b) Species found only in a particular area is known as **endemic species**.
(c) Migratory birds fly to faraway places because of **climatic** changes.

2. Differentiate between the following.

(a) Wildlife sanctuary and biosphere reserve
(b) Zoo and wildlife sanctuary
(c) Endangered and extinct species
(d) Flora and fauna

Ans. (a)

Wildlife Sanctuary	Biosphere Reserves
(i) This is an area where wild animals are protected and preserved. (ii) It is place found in Biosphere reserves.	(i) It help to maintain the biodiversity and culture of the area. (ii) A biosphere reserve may also contain other protected areas.

(b)

Zoo	Wildlife Sanctuary
(i) It is a place where we protect animals. (ii) Here artificial surroundings are made for animals (iii) Here animals are supplied prepared food.	(i) Here, too, wild animals are protected and preserved. (ii) They live in their natural habitat or environment. (iii) They get their food from forests themselves.

(c)

Endangered Species	Extinct Species
(i) These are those species which are facing the danger of extinction. (ii) Tiger is an example of an endangered species.	(i) They are the species which have already vanished from earth. (ii) Dinosaurs is an example of extinct species.

(d)

Flora	Fauna
(i) Flora are the plants found in a particular region. (ii) Sal, mango, jamun etc. are the example of flora.	(i) Fauna are the animals found in a particular region. (ii) Chinkara, blue-bell, deer, cheetah etc. are examples of fauna.

3. Discuss the effects of deforestation on the following.

(a) Wild animals
(b) Environment
(c) Villages (rural areas)
(d) Cities
(e) Earth
(f) The next generation

Ans. (a) Wild animals- Animals won't get their natural habitat and surroundings as well as food. They will start migrating to other habitats. Thus ecosystem is disturbed.

(b) Environment- Due to deforestation, climatic changes takes place. Global warming is caused due to accumulation of carbon dioxide in the atmosphere. Hence environment gets affected.

(c) Villages- Villagers cannot grow food because of no rain. So, drought situations will prevail. Villagers will move to towns and cities.

(d) Cities- Cities flooded with drought-affected villagers, will affect the environment. Food-grains will either not be available or if available, they will be costlier.

(e) Earth- Deforestation leads to change in soil properties. Physical properties of the soil will get affected badly. The land will be gradually converted into desert. Also, environment of earth will be affected thus making it unsuitable for survival.

(f) The next generation- The coming generation will not be able to see the variations in flora on earth and due to deforestation they will have to face different environmental problems like drought, scarcity of food etc. Thus they are affected.

4. What will happen if.

(a) We go on cutting trees.
(b) The habitat of an animal is disturbed
(c) The top layer of soil is exposed

Ans. (a) If we go on cutting trees, then following situation will arrive:

(i) The climate change will affect the environment due to global warming and there will be no rain.
(ii) The soil will become infertile due to regular flooding of top soil.

(b) If the habitat of an animal is disturbed, the animal may not be in position of getting its natural habitat as well as food.

(c) Removal of top layer of soil by floods and heavy winds will expose the lower hard and rocky layers. This soil has less humus and less fertility.

5. Answer in brief.

(a) Why should we conserve biodiversity?
(b) Protected forests are also not completely safe for wild animals. Why?
(c) Some tribal depends on jungle. How?
(d) What are the causes and consequences of deforestation?
(e) What is Red Data Book?
(f) What do you understand by the term migration?

Ans. (a) If the biodiversity is not conserved, the life existing on earth, their interrelationships and their relationship with environment will be disturbed.

(b) It is because despite all these the poachers keep killing or capturing the animals in these forests. That is why protected forests are also not completely safe for animals.

(c) Some tribals live in the jungle. Jungle provides them food and protection. That is why; they are fully dependent upon the forests.

(d) Causes of deforestation-

(i) Procuring land for cultivation.
(ii) Building houses and factories.
(iii) Natural Calamities like flood, drought and forest fire.
(iv) Making furniture or using wood as fuel.

Consequence of deforestation-

(i) Global warming.
(ii) Soil erosion
(iii) Melting of ice on poles.
(iv) Lowering of ground water level.

(e) Red Data Book is a source book which keeps a record of all the endangered animals and plants.

(f) Migration is the phenomenon of movement of a species from its own habitat to some other habitat for a particular time period every year due to change of climate and for the purpose of breeding.

6. In order to meet the ever-increasing demand in factories and for shelter, trees are being continually cut. Is it justified to cut trees for such projects?

Ans. Of course, to meet the ever-increasing demand in factories and for shelter, trees are being continually cut, which is not justified at all. If one tree is cut, at least five trees should be grown so that reforestation process will remain continuous. But, if trees are cut blindly and no trees are planted then the earth will face global warming, no rainfall, climate change, soil erosion and deforestation. So, cutting trees for any reason is not justified at all.

7. How can you contribute to the maintenance of green wealth of your locality? Make a list of actions to be taken by you.

Ans. For the maintenance of the green wealth of my locality I will prefer reforestation in the locality. I shall start a campaign, along with my friends, to make the people of locality aware of the importance of trees. Once the people become conscious about the importance of plants they will be requested to do the following-

(a) Each family should plant at least one tree in the monsoon month.
(b) During summer, they should assure watering of the plants everyday.
(c) On the occasion of birthday, marriage ceremony and other happy occasions, they should gift plants to their friends and relatives.

8. Explain how deforestation leads to reduced rainfall.

Ans. Deforestation leads to the accumulation of CO_2 in the atmosphere which results in global warming as CO_2 traps the heat of the sun rays. The increase in temperature of earth will disturb the water cycle and reduce rainfall causing drought in the region.

9. Find out the information about the national parks in your state. Identify and show their location on the outline map of India.

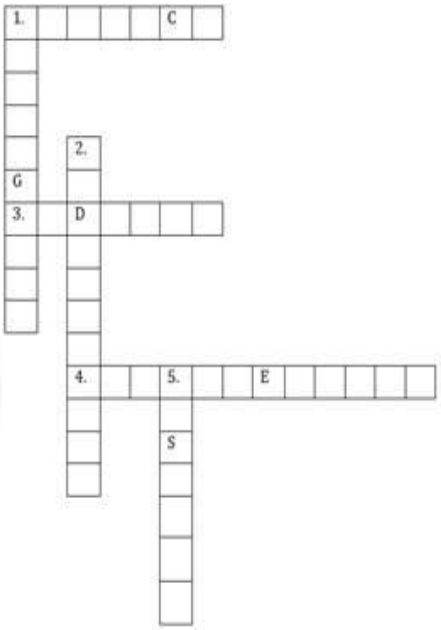
Ans. There is no national park in my native state but near about national park around my locality is

Corbett National Park in nearby state of Uttarakhand.

10. Why should paper be saved? Prepare a list of ways by which you can save paper.

Ans. Manufacturing of paper needs trees. By cutting trees, deforestation is caused. If paper is saved or recycled, so many trees can be saved. To make one tonne of paper 17 full grown trees are to be cut. Therefore, to stop deforestation, we should save paper. It can be saved by recycling. Paper can be recycled for 5-7 times and can be used. If everyone who use paper, could save at least one sheet of paper in a day, we can save many trees in a year.

11. Complete the word puzzle.



Down

1. Species on the verge of extinction.

2. A book carrying information about endangered species.

5. Consequence of deforestation.

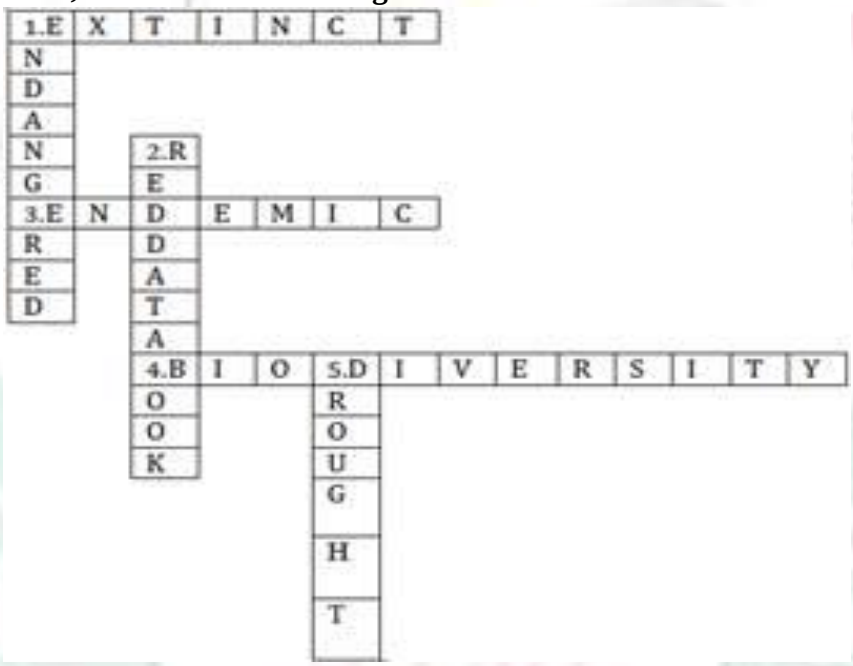
Across

1. Species which have vanished.

3. Species found only in particular habitat.

4. Variety of plants, animals and microorganisms found in an area.

Ans.



Chapter – 8
Cell — Structure and Functions

- **Define the terms**

1. Cell: The smallest structural and functional unit of an organism, which is typically microscopic and consists of cytoplasm and a nucleus enclosed in a membrane.

2. Cell membrane: The basic component of a cell. The cytoplasm and nucleus are enclosed within cell membrane. There is an outer thick layer in cells of plants called **cell wall**.

3. Nucleus: Nucleus is separated from cytoplasm by a nuclear membrane. It is generally spherical in the centre of the cell.

4. Nucleolus: Nucleus contains a still smaller round body known as nucleolus.

- **Extra Questions:-**
- **Very short Answer Questions:-**

1. The instrument used to observe cells is _____

Ans. Microscope. It helps us to see minute objects clearly.

2. In a cell, where are the genes located?

Ans. Nucleus/chromosomes.

3. Amoeba and Paramecium belong to which category of organisms?

Ans. Unicellular and Eukaryotic/Protozoan.

- **Short Answer Questions:-**

1. What are the functions of cell wall in plant cells?

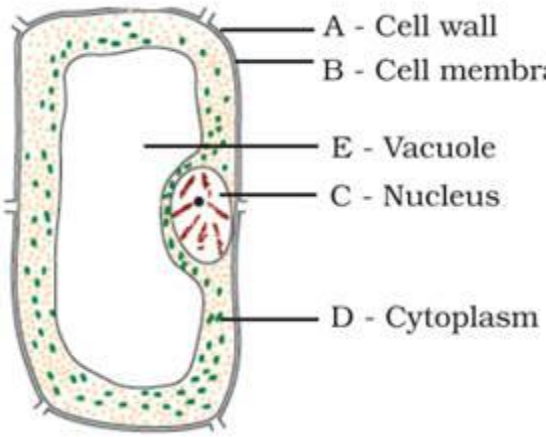
Ans. Cell wall protects the cell contents, gives shape to the cell.

2. We do not sense any pain when we clip our nails or cut our hair. Why?

Ans. Nails and hair are both made up of dead cells. They do not have nerve cells. Hence we don't feel the pain when they are cut.

3. Label the parts A to E in the given diagram .

Ans.



❖ **Answer in detail**

1. Why do plant cells have an additional layer surrounding the cell? What is this layer known as?

Ans. As plants, cannot move from one place to another, they need protection against variations in temperature, wind speed, atmospheric moisture etc. Therefore, for protection plant cells have additional protective layers. This layer is called the cell wall. Plant cells have an additional layer surrounding the cell wall.

❖ **Textual Exercise:-**

1. Indicate whether the following statement are true (T) or false(F).

(a) Unicellular organisms have one-celled body. **T**

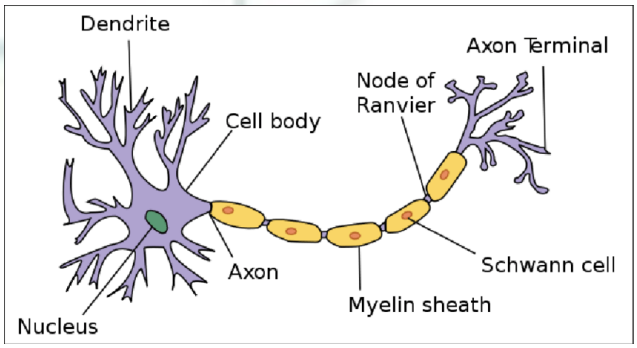
(b) Muscle cells are branched. **T**

(c) The basic living unit of an organism is an organ. **F**

(d) Amoeba has irregular shape. **T**

2. Make a sketch of the human nerve cell. What function do nerve cells perform?

Ans. Nerve cell-



Function of Nerve cells: The nerve cell receives and transfers the messages, thereby helping to control and coordinate the working of different parts of the body.

3. Write short notes on the following.

(a) Cytoplasm

(b) Nucleus of a cell

Ans. (a) Cytoplasm: It is a fluid that fills the cell and occurs between the plasma membrane and the nucleus. Cell organelles such as mitochondria, ribosomes, Golgi bodies, etc. are suspended in the cytoplasm. The cytoplasm helps in the exchange of materials between cell organelles.

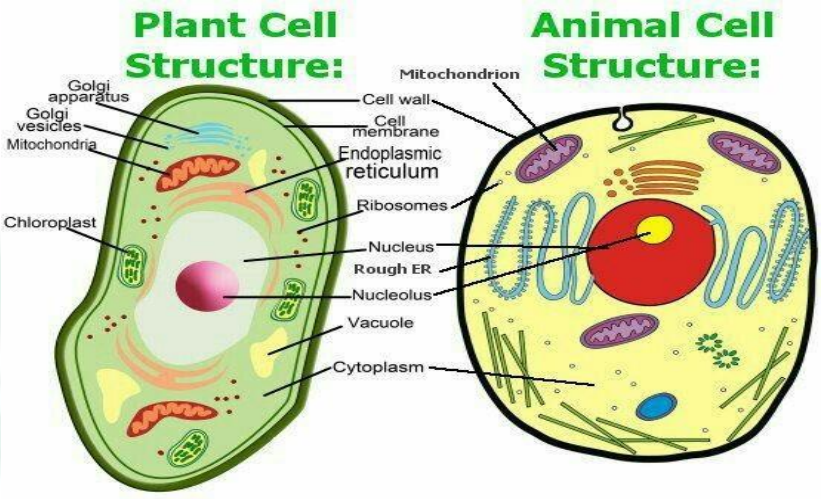
(b) Nucleus of a cell: The nucleus is a spherical structure generally present at the centre of a cell. It is known as brain of the cell as it controls the activities of cells. The nucleus is composed of nuclear membrane, nucleous and chromosomes.

4. Which part of the cell contains organelles?

Ans. Cytoplasm contains organelles of the cell.

5. Make sketches of animal and plant cells. State three differences between them.

Ans.



Difference between plant and animal cell-

Animal cell	Plant cell
Cell wall is absent (Outermost covering is the plasma membrane)	Cell wall is present (Cell wall is made of cellulose)
Plastids are present	Plastids are absent
Large vacuoles are present	No or small vacuoles are present
Nucleus is in the middle of cell	Nucleus is towards periphery

6. State the difference between eukaryotes and prokaryotes.

Ans. (i) Eukaryotes have well-organized nucleus with nuclear membrane while prokaryotes do not have well organized nucleus.

(ii) Prokaryotic cell is generally smaller in size than eukaryotic cells.

7. Where are chromosomes found in a cell? State their function.

Ans. Chromosomes are found in the nucleus of the cell. These are thread-like structures that carry genes. Genes contain information necessary for the transfer of characteristics from the parents to the offspring. Thus, chromosomes play an important role in the inheritance of characteristics.

8. 'Cells are the basic structural units of living organisms'. Explain.

Ans. All organisms are made up of cells. They have different designs, shapes and sizes in the living organism. All the life processes take place inside a cell. Many similar cells aggregate togather to make tissue. So many tissues are organised to form organ and finally many organs are organised to form a system. So we can say that cells are basic units of living organisms.

9. Explain why chloroplasts are found only in plant cells?

Ans. Chloroplasts are found only in plant cells. They contain a green pigment called chlorophyll. This green pigment is important for photosynthesis in green plants. This chlorophyll pigment traps solar energy and utilizes it to manufacture food for the plant.. No photosynthesis occurs in animals. So, they do not contain chloroplast.

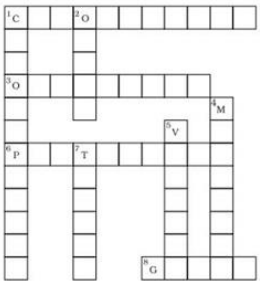
10. Complete the crossword with the help of clues given below.

Across

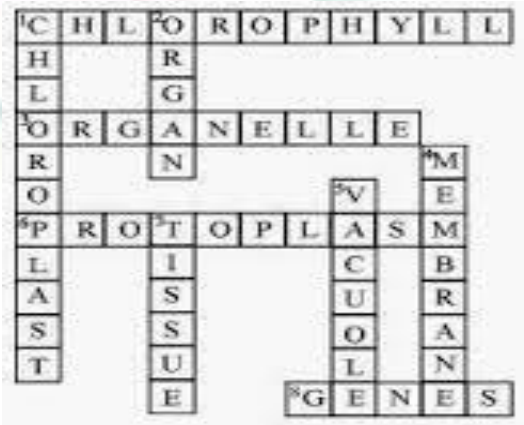
1. This is necessary for photosynthesis.
3. Term for components present in the cytoplasm.
6. The living substance in the cell.
8. Units of inheritance present on the chromosomes.

Down

1. Green plastids
2. Formed by collection of tissues
4. It separates the contents of the cell from the surrounding medium.
5. Empty structure in the cytoplasm.
7. A group of cells.



Ans.



Chapter – 9
Reproduction in Animals

- **Define the terms -**

1. sexual reproduction:-Reproduction resulting from the fusion of male and female gametes is called **sexual reproduction.**

2. fertilization :-The fusion of ovum and sperm is called **fertilization**.

3.zygote :-The fertilized egg is called a **zygote**.

4.Binary fission :-Amoeba reproduces by dividing itself into two. This type of asexual reproduction is called **binary fission**.

5.Budding :-In hydra, new individuals develop from buds. This method of asexual reproduction is called **budding.**

6.Metamorphosis :-The transformation of the larva into adult through drastic changes is called **metamorphosis**.

7.Viviparous animals :-Animals such as human beings, cows and dogs which give birth to young ones are called **viviparous** animals.

8.Oviparous Animals: Animals that lay eggs are called **oviparous** animals, e.g., frogs, lizards, butterflies, etc.

- **Extra Questions:-**
- **Very short Answer Questions:-**

1. Stages in the lifecycle of silkworm are given below. Write them in sequential order.

Pupa, Silkworm, Egg, Silkmoth

Ans. Silkworm, Egg, Pupa,Silk moth

2. What is the importance of reproduction?

Ans. Reproduction plays a vital role in the life of living beings by ensuring the continuation of species generation after generation. It ensures the continuation of races for several generations

3. In markets, eggs of birds are available but never eggs of dogs. Why?

Ans. This is due to that fact that birds like hen give birth to their young ones by laying eggs whereas in dogs the mother gives birth to the young ones and hence are known as viviparous.

❖ **short Answer Questions:-**

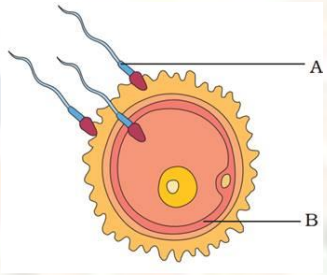
1. The eggs of frogs do not have shells for protection, yet they are safe in water. How?

Ans. A jelly-like layer covers the eggs of frogs and provides protection from predators.

2.What does the given figure represent?

Ans. The figure shows an *Amoeba* undergoing binary fission with a dividing nucleus.

3. Observe the figure given and answer the questions that follow.



(a) Label A and B.

(b) Identify the process.

(c) What happens during this process and what is formed?

Ans. (a) A-sperm; B-ovum (egg)

(b) Fertilisation

(c) Sperm nucleus fuses with the egg nucleus to form the zygote.

4. Why only male gametes have a tail?

Ans. Because they are motile and reaches the non-motile female gamete by movement with the help of tail.

❖ **Answer in Detail -**

1. Hens and frogs are both oviparous exhibiting different types of fertilisation. Explain.

Ans. Hen is an oviparous animal with internal fertilisation. The fertilised egg develops into an embryo inside the body. However, the development of chick from the embryo takes place outside the body.

Frogs are oviparous in which both fertilisation and development of embryo and young ones occur outside the body.

2. How can we say that fish exhibits external fertilisation?

Ans. Female fishes release eggs into water and male fish releases sperms. Sperms swim randomly in water and comes in contact with the eggs. The nucleus of the sperm moves into the egg and fuses with it. Since fertilisation occurs in water, outside the female body, it is external fertilisation.

❖ **Textual Exercise:-**

1. Explain the importance of reproduction in organism.

Ans. The production of a new individual from parents is known as reproduction. Reproduction is very important as it ensures the continuation of similar kinds of individuals, generation after generation. If this process do not exist, the generation of living beings will be vanished from the earth.

2. Describe the process of fertilisation in human beings.
Ans. In human beings, sexual reproduction occurs. In this process, the fusion of male and female gametes takes place. Male individual produce sperms in testes and female produce ovum in ovary. During copulation, sperms are released by the male into the vagina of female from where the sperms move towards the fallopian tube in the female reproductive system. Female release one ovum every month in the middle of menstruation cycle which travels towards the fallopian tube. The released sperm reaches the fallopian tube. The fusion of male gamete (sperm) and female gamete (ovum) takes place in fallopian tube. The fusion of male and female gametes is called fertilisation.

3. Choose the most appropriate answer.

(a) Internal fertilisation occurs
i. In female body. ii. Outside female body
iii. In male body iv. Outside male body

(b) A tadpole develops into an adult frog by the process of
i. Fertilisation. ii. Metamorphosis
iii. Embedding iv. Budding

(c) The number of nuclei present in a zygote is
i. Noneii. One iii. Two iv. Four

Ans. (a) (i) in female body. **(b) (ii)** metamorphosis. **(c) (ii)** One.

4. Indicate whether the following statements are True (T) or False (F).

(a) Oviparous animals give birth to young one. (F).

(b) Each sperm is a single cell. (T).

(c) External fertilisation takes place in frog. (T).

(d) A new human individual develops from a cell called gamete. (T).

(e) Egg laid after fertilisation is made up of a single cell. (T).

(f) Amoeba reproduces by budding. (F).

(g) Fertilisation is necessary even in asexual reproduction. (T).

(h) Binary fission is a method of asexual reproduction. (T).

(i) A zygote is formed as a result of fertilisation. (T).

(j) An embryo is made up of a single cell. (F).

5. Give two differences between a zygote and Foetus

Ans. When fertilisation takes place, the nuclei of the sperm and the egg fuse to form a single nucleus, which results in the formation of a fertilized egg or zygote.

Zygote now begins to develop into an embryo. The embryo continues to develop in the uterus and produces body parts such as hands, legs, head, eyes etc. The stage of the embryo in which all the body parts can be identified is called foetus.

6. Define asexual reproduction. Describe two methods of asexual reproduction in animals.

Ans. The type of reproduction in which only a single parent is involved is called asexual reproduction.

Asexual reproduction takes place in very small animals like Hydra and microscopic organisms like Amoeba.

Budding- New individual develops as a outgrowth from a single parent. In hydra a small bulge called bud develops into new individuals.

Binary fission- The body of unicellular organisms like amoeba divides into two equal parts and each parts develops as new individual.

7. In which female reproductive organ does the embryo get embedded?

Ans. The embryo gets embedded in the wall of the uterus / fallopian tube for further development.

8. What is metamorphosis? Give examples.

Ans. The drastic change which takes place during the development of an animal is called metamorphosis. The animals that undergoes metamorphosis are

a. Silkworm (egg-> caterpillar-> pupa ->adult)

b. Frog (egg --> tadpole --> adult)

9. Differentiate between internal fertilisation and external fertilisation.

Ans.

Internal fertilisation	External fertilisation
(i) The fertilisation takes place inside the female body. (ii) Example- human beings, hen, dog etc.	(i) The fertilisation takes place outside the body of female. (ii) Example- frog, fish etc.

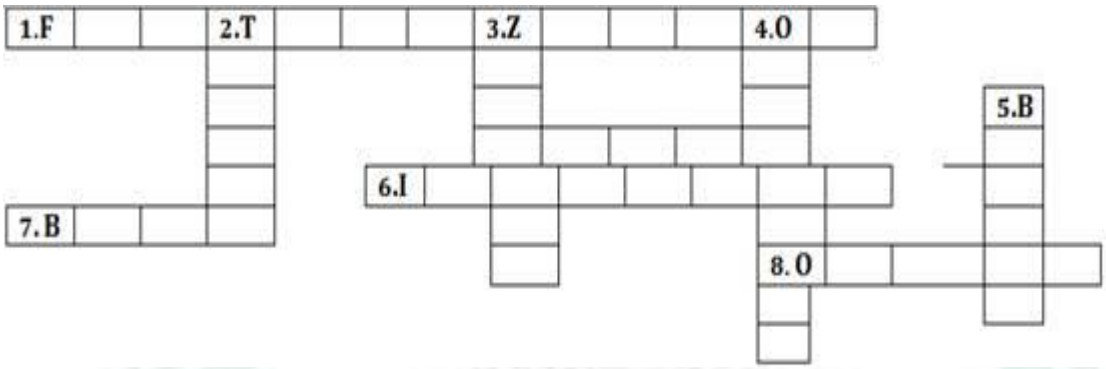
10. Complete the crossword puzzle using the hints given below.

Across

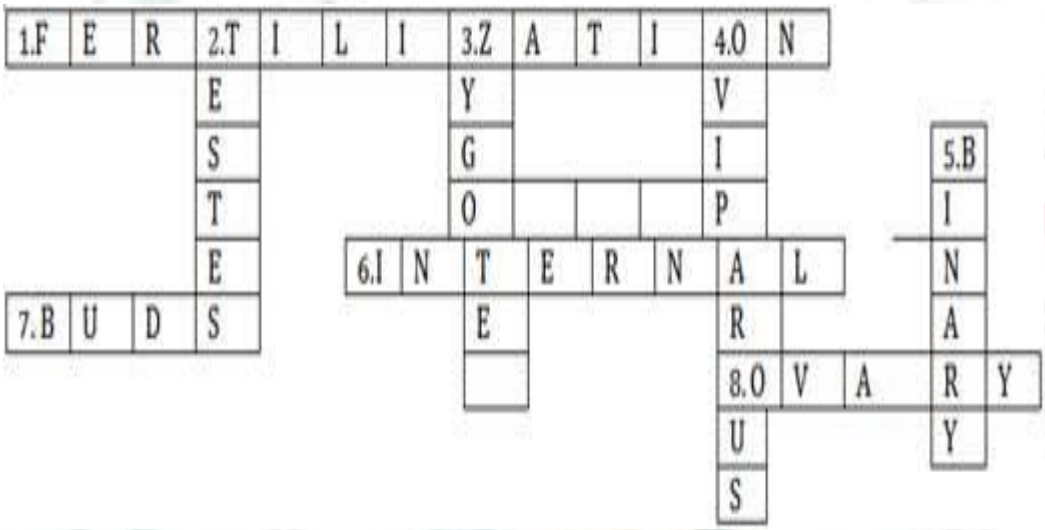
1. The process of the fusion of the zygotes.
6. The type of fertilisation in hen.
7. Term used for bulges observed on the sides of the body of hydra.
8. Eggs are produced here.

Down

2. Sperms are produced in these male reproductive organs.
3. Another term for the fertilized egg.
4. These animals lay eggs.
5. A type of fission in amoeba.


1.F
2.T
3.Z
4.O
5.B
6.I
7.B
8.O

Ans.


1.F E R 2.T I L I 3.Z A T I 4.O N
E Y V
S G I 5.B
T O P I
E 6.I N T E R N A L N
7.B U D S E R A
8.O V A R Y
U Y
S