



CLASS - VIII

SUBJECT – SCIENCE

[SAMPLE PLAN]

***TEXTBOOK OF SCIENCE
(NCERT PUBLICATIONS)***

AUG-SEPT

SESSION – 2021 - 2022

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CLASS - 8
SUB - SCIENCE

CH - 6 COMBUSTION AND FLAME

Q1. Tick the correct option -

i. The calorific value of a fuel is expressed in the unit called -

- a) Kilo joule per liter
- b) Kilojoules per gram
- c) Kilogram per milliliter
- d) Kilojoules per kilogram

Ans - d) Kilojoules per kilogram

ii. Boojho is writing some students about polyester. In which of the following statements is or are incorrect ?

- a) In the sun, heat and light are produced due to nuclear reactions.
- b) The heat and light produced in the sun are ordinary combustion as like fire.
- c) A substance which can burn are called combustible substances.
- d) When a magnesium ribbon burns it combines with oxygen of air to form

iii. The different types of fuel are

- a) Solid, Liquid, Gas
- b) Liquid and energy
- c) Heat and Flame
- d) combustion and Ignition

Ans - a) Solid , Liquid, Gas

Q 2. Fill the blanks -

i. Burning of wood and coal causes pollution of air.

ii. A liquid fuel, used in home is LPG.

iii. Fuel must be heated to its ignition temperature before it starts burning.

iv. Fire produced by oil cannot be controlled by water.

v. The lowest temperature at which a combustible substance catches fire is known as Ignition Temperature.

Q 3. Answer in one or two word -

i. Name two substances having low ignition temperature.

Ans - Paper and white phosphorus.

ii. Name some gaseous fuels.

Ans- Natural gas, petroleum gas , biogas and coal gas.

iii. Which is the most common fire extinguisher?

Ans. The most common fire extinguisher is water.

iv. Which gas is produced due to incomplete combustion of fuel?

Answer: Carbon Monoxide.

Q 4. Short Answer questions –

i. 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.

ii. 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.

iii. 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.

iv. 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.

v. 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.

vi. Why are fires produced by burning oil not extinguished by pouring water?

Ans - Water is heavier than oil. So, it sinks below the oil, and oil keeps burning on top. Thus, water is also not suitable for fires involving oil and petrol.

Q 5 . Long Answer questions–

i. 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.

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

Ans. CNG produces harmful products like sulphur di oxide, 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.

iii. 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.

iv. Explain how CO₂ 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.

v. 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.

vi. 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.

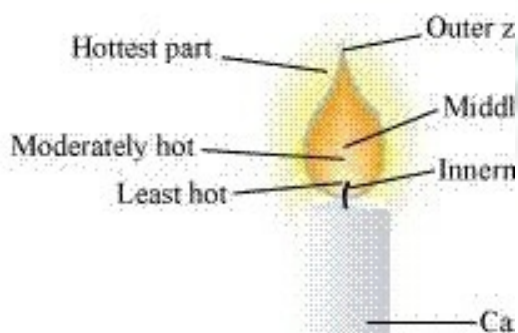
Therefore, calorific value of fuel = $180,000/4.5\text{kg} = 40,000 \text{ kJ/kg}$.

vii. 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.

viii. Explain with labelled diagram of candle flame.

Ans. There are three different zones of a flame – innermost zone (dark zone), middle zone (luminous zone) and outer zone non-luminous zone. The innermost zone of a flame is black in colour due to presence of unburnt vapours of the combustible material.



HOTS

i. 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.

ii. 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.

iii. Why food is called fuel for our body?

Ans - Food is called fuel for our body because in our body food is broken down by reaction with oxygen and heat is produced.

ACTIVITY

Make two paper cups by folding a sheet of paper. Pour about 50 mL of water in one of the cups.

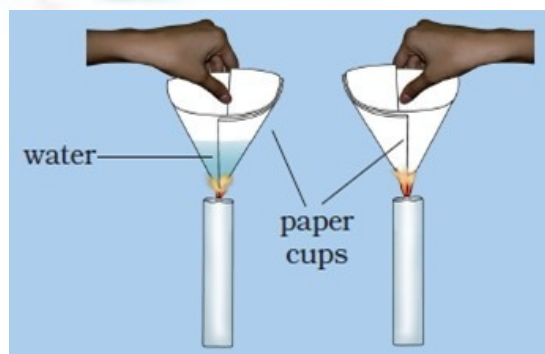
Heat both the cups separately with a candle. What do you observe?

- What happens to the empty paper cup and why?**
- What happens to the paper cup with water and why?**
- Does water in this cup become hot?**

Ans - (a) The empty paper cup catches fire easily and starts burning because the ignition temperature of paper reaches quickly.

(b) When we heat the paper cup containing water, then the heat supplied to the paper cup is transferred to water inside it by conduction. So, in the presence of water, the ignition temperature of paper cup is not reached, and hence the paper cup does not catch fire.

(c) Yes, the water in this paper cup becomes hot gradually.



CH – 7 CONSERVATION OF PLANTS AND ANIMALS

Q1. Tick the correct option –

i. Deforestation means

- (a) Planting more trees
- (b) Designing a forest
- (c) Demanding a forest
- (d) Clearing of forests and using that land for other purposes.

Ans - (d) Clearing of forests and using that land for other purposes.

ii. All effect of deforestation is it

- (a) Increases temperature of the earth
- (b) Increases pollution level
- (c) Increases CO₂ level of atmosphere
- (d) All of the above

Ans - (d) All of the above

iii. Increased level of carbon dioxide in the atmosphere traps the heat rays reflected by the earth causing an increase in the temperature on the earth. This is

- (a) Local warming
- (b) House warming
- (c) Global warming
- (d) Country warming

Ans - (c) Global warming

iv. Part of the earth which supports life where living beings exists is called _____

- (a) Atmosphere
- (b) Biosphere
- (c) Biology
- (d) Biodiversity

Ans - (b) Biosphere

v. Species of plants and animals which are found exclusively in a particular area are called

- (a) Endemic species
- (b) Exotic species
- (c) Local species
- (d) Specific species

Ans - (a) Endemic species

Q 2. Fill the blanks –

- i. **Red Data Book** is the Source book which keeps a record of all the endangered animals and plants.
- ii. The process of conversion of fertile lands into deserts is known as **Desertification**.
- iii. A place where animals are protected in their natural habitat is called **Wildlife Sanctuary**.
- iv. Birds that travel long distances to overcome harsh conditions are known as **migratory birds**.
- v. . Animals whose numbers are diminishing to a level that they might face extinction are known as the **endangered animals**.
- vi. Migratory birds fly to far away places because of **climatic** changes.

Q 3. Answer in one or two word –

- i. **Which act was aimed at the preservation and conservation of natural forests in India?**

Ans - Forest Conservation Act

- ii. **Which one of the following species is not included under the ‘Red List’?**

Ans - Endemic

- iii. **Indian Forest (conservation) Act came into effect in which year?**

Ans - 1927

- iv. **Which plant is endemic to Pachmarhi Biosphere Reserve?**

Ans – Wild Mango

- v. **The Red Data Book was originally prepared by whom ?**

Ans- IUCN (International Union for Conservation of Nature)

- vi. **When was Project Tiger was launched?**

Ans - 1973

Q 4. Short Answer questions –

- i. **Define the following terms –**

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

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

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

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

e) **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).

f) 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.

g) National Park : Areas reserved for wild life where they can freely use the habitats and natural resources.

h) Biosphere Reserve : Large areas of protected land for conservation of wild life, plant and animal resources and traditional life of the tribals living in the area.

ii. Name the first Reserve Forest of India.

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

iii. What is an Ecosystem ?

Ans. An ecosystem is made of all the plants, animals and microorganisms in an area along with non-living components such as climate, soil, river deltas etc.

iv. Some tribals depends on jungle. How?

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

v. Differentiate between the following.

(a) Wildlife sanctuary and biosphere reserve

(b) Zoo and wildlife sanctuary

Ans. (a)

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

Zoo (i) It is a place where we protect animals. (ii) Here artificial surroundings are made for animals. (iii) Here animals are supplied prepared food.	Wildlife Sanctuary (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.	Zoo (i) It is a place where we protect animals. (ii) Here artificial surroundings are made for animals. (iii) Here animals are supplied prepared food.	Wildlife Sanctuary (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.	Zoo (i) It is a place where we protect animals. (ii) Here artificial surroundings are made for animals. (iii) Here animals are supplied prepared food.	Wildlife Sanctuary (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.
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Q 5 . Long Answer questions–

i) 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.

ii) 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.

iii) 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.

iv) 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.

v. What is Van Mahotsav? Who started it and when?

Ans - Van Mahotsav is an annual tree-planting festival in India. This movement was initiated in the year 1950 by India's Union Minister for Agriculture, Kulapati Dr. K. M. Munshi. It has gained immense national importance and every year, millions of saplings are planted all across India in observation of the Van Mahotsav week.

vi. 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.

HOTS

i. Why does it matter if a species go extinct?

Ans - When a species go extinct, with it the whole food web get disturbed due to inter-relationship and interaction between organisms. The species of organisms which might have been dependent on the extinct species for food may also get extinct due to starvation until it get an alternate option. If the dependent species shift its choice of food on another species then there might be a competition for food with other species.

ACTIVITY

i. Plant at least five different plants in your locality during this academic year and ensure their maintenance till they grow.

ii. Give your bit to help environment , Promise yourself that this year you will gift plants to your friends and relatives on their achievements, or on occasions like birthdays. Ask your friends to take proper care of these plants and encourage them to gift plants to their friends on such occasions.

iii. Collect some more information about some other Campaigns / Projects launched by Government of India to protect threatened species. Write in table - Animal and Project name.

CH – 8 Cell - Structure and Functions

Q1. Tick the correct option –

i. Largest cell visible to unaided eye is

- a) hen's egg b) ostrich egg c) bacteria's cell d) nerve cell

Ans - b) ostrich egg

ii. Which of the following is not a major component of protoplasm ?

- a) hydrogen b) nitrogen c) sulphur d) Oxygen

Ans - c) sulphur

iii. The white part of egg is called

- a) yolk b) albumen c) cytoplasm d) none of these

Ans - b) albumen

iv. A group of similar cells performing a specific function is called

- a) organ b) tissue c) cell organelle d) none of these

Ans - b) tissue

Q 2. Fill the blanks –

i. The green plastids are called chloroplasts.

ii. Plasma membrane / Cell membrane is the outermost layer of an animal cell.

iii. The term cell was coined by Robert Hooke.

iv. Lysosomes are known as “suicide bags of the cell”.

v. Cells are known as building blocks of life.

vi. Organ is formed by collection of tissues.

Q 3. Indicate whether the following statements are true (T) or false (F).

i. Unicellular organisms have one-celled body. True

ii. Muscle cells are branched. True

iii. The basic living unit of an organism is an organ. False

iv. Amoeba has irregular shape. True

v. Cell wall is present in Plant cell only. True.

Q 4. Answer in one or two word –

i. Name the instrument used to observe cells.

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

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

Ans. Nucleus/chromosomes.

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

Ans. Unicellular and Eukaryotic/Protozoan.

iv. Which part of the cell contains organelles ?

Ans – Cytoplasm.

v. Give two examples of unicellular animals.

Ans – Amoeba and Paramecium

vi. Which cells in our body grow and divide all through the life ?

Ans - Cells of the skin.

Q 5. Short Answer questions –

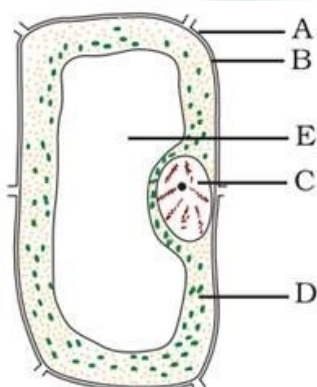
i. What are the functions of cell wall in plant cells?

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

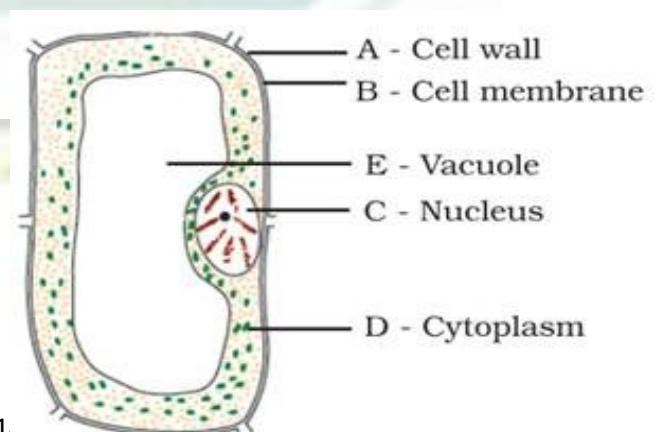
ii. We do not sense any pain when we clip our nails or cut our hair. Why?

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.

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

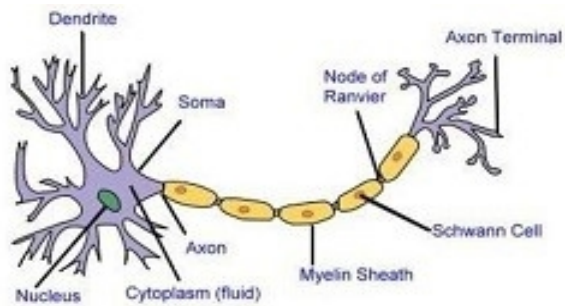


Ans.



iv. 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.

v. Which part of the cell contains organelles?

Ans. Cytoplasm contains organelles of the cell.

vi. 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.

vii. Can unicellular organisms be seen with the naked eye ?

Ans - Unicellular organisms can only be viewed with the help of a microscope.

viii. Why are mitochondria known as the “power house of the cell” ?

Ans - Mitochondria is known as the power house of the cell because they perform the function of respiration and provide the cell with energy.

Q 6 . Long Answer questions–

i. 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.

ii. Write short notes on the following.

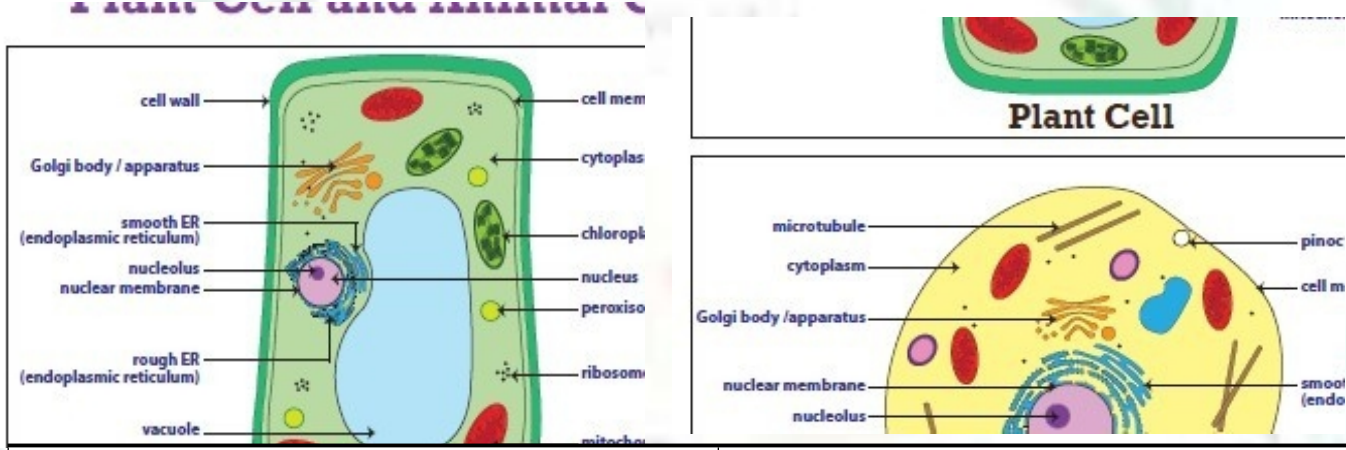
(a) Cytoplasm

(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, nucleolus and chromosomes.

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



Plant Cells	Animal cells
(i) The outermost covering is a cell wall and it is made of cellulose.	(i) The outermost covering of animal cell is the plasma membrane.
(ii) Plastids are present in plant cells.	(ii) Plastids are absent in animal cells.
(iii) Large vacuoles are present in plant cells.	(iii) No or very small vacuoles are present in animal cells.
(iv) It lacks centrosomes and lysosomes.	(iv) They have centrosomes or lysosomes.

iv. 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.

v. **‘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 together to form 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.

vi. **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.

HOTS

i. **Paheli wants to know if the structure of the nucleus is the same in cells of plants, animals and bacteria.**

Ans – No, the nucleus is not the same in plants, animals and bacteria. In plants and animals, the nucleus is highly organised and in bacteria, the nucleus is not organised.

ii. **Boojho wants to know why plant cells need cell walls?**

Ans - The **plant cell wall** provides definite shape, strength, rigidity. It also provides protection against mechanical stress and physical shocks. It helps to control **cell** expansion due to the intake of water. It also helps in preventing water loss from the **cell**.

ACTIVITY

i. **Take a clean tooth pick, or a matchstick with the tip broken. Scrape inside of your cheek without hurting it. Place it in a drop of water on a glass slide. Add a drop of iodine and place a coverslip over it. Alternatively, add 1-2 drops of methylene blue solution. Observe it under the microscope. You may notice several cells in the scraped material (Fig. 8.6). You can identify the cell membrane, the cytoplasm and nucleus. A cell wall is absent in animal cells.**

ii. **Visit a laboratory for senior secondary students in your school or in a neighbouring school. Learn about the functioning of a microscope in the laboratory. Also observe how a slide is observed under the microscope.**

iii. **Talk to the senior biology teacher in your school or a neighbouring school. Find out if there are diseases which are passed on from parents to the offspring. Find out how these are carried and also if these diseases can be treated. For this you can also visit a doctor.**

CH – 9 REPRODUCTION IN ANIMALS

Q1. Tick the correct option –

i. Internal fertilisation occurs

- a) In female body. b) Outside female body
c) In male body d) Outside male body

Ans – a) In female body

ii. A tadpole develops into an adult frog by the process of

- a) Fertilisation. b) metamorphosis c). Embedding d) Budding

Ans – b) Metamorphosis

iii. The number of nuclei present in a zygote is

- a) None b) Two c) One d) Four

Ans – c) One

iv. After fertilisation, the resulting cell which gives rise to a new individual is the

- (a) embryo (b) foetus (c) ovum (d) zygote

Ans – d) zygote

Q 2. Fill the blanks –

i. In humans, the development of fertilised egg takes place in the Uterus.

ii. In human beings, after fertilisation, the structure which gets embedded in the wall of uterus is foetus.

iii. Reproduction by budding takes place in hydra

Q 3. Mark 'T' if the statement is true and 'F' if it is false.

i. Oviparous animals give birth to young one. . False

ii. Each sperm is a single cell. True

iii. External fertilisation takes place in frog. True

iv. A new human individual develops from a cell called gamete. True

v. Egg laid after fertilisation is made up of a single cell. True

vi. Amoeba reproduces by budding. False

- vii. Fertilisation is necessary even in asexual reproduction. **True**
- viii. Binary fission is a method of asexual reproduction. **True**
- ix. A zygote is formed as a result of fertilisation. **True**
- x. An embryo is made up of a single cell. **False**

Q 4. Answer in one or two word –

Q 5. Short Answer questions –

i. Define the terms.

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

b) Fertilization :-The fusion of ovum and sperm is called **fertilization**.

c) Zygote:-The fertilized egg is called a **zygote**.

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

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

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

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

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

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

Pupa, Silkworm, Egg, Silkmoth

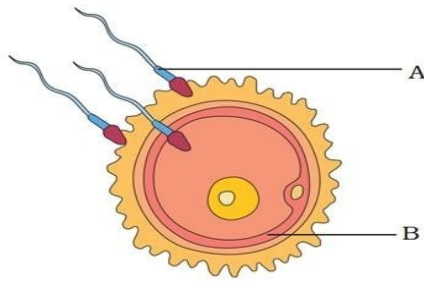
Ans. Silkworm, Egg, Pupa, Silk moth

iii. What does Fig. represent?



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

iv. Observe the figure 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.

v. 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.

vi. 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)

vii. Differentiate between internal fertilisation and external fertilisation.

Ans.

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

Q 6 . Long Answer questions–

i. 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

ii. 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.

iii. 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.

iv. 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.

v. 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.

vi. 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.

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

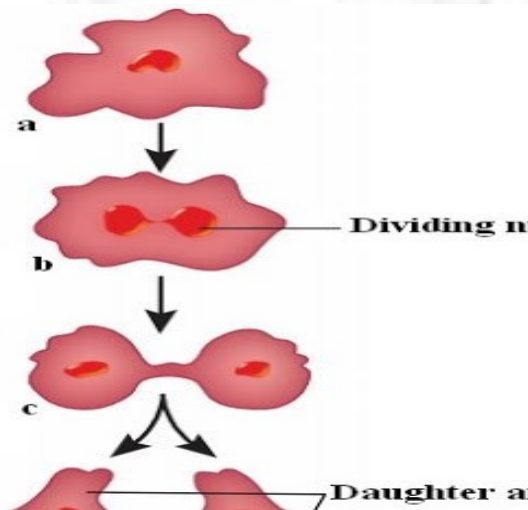
Ans. The type of reproduction in which only a single parent is involved is called asexual reproduction.

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 division of the nucleus into two nuclei . This is followed by division of its body into two, each part receiving a single nucleus. Finally two amoebae are produced from one parent amoeba.



HOTS

i. 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.

ii. 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.

iii. Why do fish and frogs lay eggs in hundreds whereas a hen lays only one egg at a time?

Ans Animals like frogs and fish lay hundreds of eggs and release millions of sperms. But the entire eggs do not get fertilized and develop into new individuals. This is because the eggs and sperms get exposed to water movement, wind and rainfall. Also, there are other animals in the pond which may feed on eggs.

Whereas, in case of a **hen**, internal fertilization takes place and hence the survival of the baby which **would** hatch from the **egg** has much higher rates of survival as compared to those in case of a **frog**. Hence, **hen** produces **only one egg**.