# Chapter:1A

# Characteristic of Living Organisms

**1. Choose and write the best option for each statement.**

a. i. Snake

b. iv. Centipede

c. iv. Flower

d. iii. Sago palm

e. ii. Fern

f. i. Fern

**2. Answer the following questions.**

**a.**

| | |
|---|---|
| **i. Endoskeleton**<br>• Vertebrates have a solid structure of bones inside their bodies , which is called as endoskeleton.<br>• It protects vital organs inside the body.<br>• Examples: horse , shark and frog has endoskeleton. | **Exoskeleton**<br>• Invertebrates are hard outer covering called as exoskeleton.<br>• It protects the outside part of the body.<br>• Example: crab , centipede and starfish has exoskeleton. |
| **ii. Vertebrates**<br>• Vertebrates are the animals that have backbone.<br>• Examples: Snake , pigeon and shark. | **Invertebrates**<br>• Invertebrates are the animals without backbone.<br>• Examples: spider, crabs and centipede. |
| **iii. Flowering plants**<br>• A plant that produces flowers during any stage of its life cycle is called a flowering plant.<br>• Examples: Lavender, apple tree and rose are example of flowering plants. | **Non – flowering plants**<br>• A plant that do not produce a flower at any stage of its life cycle is called a non – flowering plant.<br>• Examples: mosses , ferns and sago palm are examples of non – flowering plants. |

**b.** Biodiversity is the variety of living organisms on earth. i.e .on land, air and water.

In ,biodiversity ,every single organism has an equal important role in the environment. Plants provide food , shelter, oxygen, medicine and agriculture.

Similar to the plants, animals are domesticated and are used for food production. Some animals are also used in agriculture. A lot of animals have gone extinct over the past few years. Every animals needs a home and every plant needs a place to grow. When we convert the pieces of land into industrial production spaces, we reduce the landscapes needed for plants and animals.

**c.** Protection and management of biodiversity is called conservation of biodiversity. We can conserve biodiversity by preventing the cutting of trees, putting a ban on hunting of animals and efficient utilization of natural resources.

**d.** They will not be able to prepare their own food.

**e.** Vertebrates have solid structure of bones inside their bodies, which is called endoskeleton.

**f.** Following are some of the measures that should be taken for the protection of biodiversity.

- Cutting of forest should not be allowed.
- There should be laws to protect the endangered species.

**g.** 1. Plants can make their own food, while animals cannot prepare their own food.

2. Plants cannot move from one place to another while animals move from one place to another.

3. Plants needs sunlight to grow while animals do not need sunlight to grow.

4. Plants do not have developed senses while animals have developed senses.

5. Plants inhales carbon dioxide and exhales oxygen while animals inhales oxygen and exhales carbon dioxide.

**3. Look and read each item carefully and decide if it is true for both plants and animals, only plants or only animals. Put a tick (√) in the correct column.**

| Items | Both plants and animals | Only plants | Only animals |
|---|---|---|---|
| Need water | √ | | |
| Grow | √ | | |
| Moves from one place to another | | | √ |
| Makes its own food | | √ | |

| | | | |
|---|---|---|---|
| Living | √ | | |
| Need sunlight to grow | | √ | |
| Have developed senses | | | √ |

# Chapter:1B

## Functions of Major Structures in Living Organisms

**1. Choose and write the best option for each statement.**

a. i. incisors
b. iv. 12
c. i. movement
d. ii. root
e. iii. leaf
f. i. Fern

**2. Answer the following questions.**

**a.** Human being eat all kinds of food. They have four types of teeth and have different shapes and different functions.

**Incisors:** Incisors are located in the front center of mouth. They are 8 in number. Incisors are used to bite the food.

**Canines:** Canines are located behind incisors. They are four in number. They are the sharpest teeth and are used to tear food.

**Premolars:** Premolars are located behind to the canines. They are eight in number. Premolars have a flat surface and are used for tearing and crushing food.

**Molars:** Molars are located behind premolars. Molars are the largest teeth. They are twelve in numbers. They have large flat surface and are used to grind food.

**b.** Animals have bones because these bones provide them support, shape, movement and protection to the soft organs inside the body. These bones make a unique framework called as skeleton. This skeleton is attached to muscles and helps animals in movement.

**c.** The most beautiful part of a plant is the flower. Flowers produce seed known as the reproductive parts of the plants.

**d.** Plants are important for us as they provide us food, shelter, medicine and also help us to breathe. If one day there were no plants left on earth, there would be no oxygen to breathe and also no food to eat.

**e. Heart**

The heart is the pumping organ in the body of animals. It pumps blood and distributes oxygen and nutrients throughout the body.

**Brain**

Our brain is the control centre of our body. We have the ability to think, learn new things, take important decisions and respond to what happens in the surroundings. All these functions are performed by brain.

**Stomach**

Stomach digests and softens the food. Stomach stores the food, which comes from the food pipe. Stomach also helps in breakdown of food by contraction and relaxation of smooth muscles.

**Lungs**

Animals need oxygen to survive. Lungs help them to take in oxygen from the fresh air and remove carbon dioxide from their body when they breathe out.

**f.** Without bones, we would have no "Structural frame" for our skeleton, we will unable to move our skeleton, and leave our internal organs poorly protected.

# Chapter:2A

# Diversity

**1. Choose and write the best option for each statement.**

a. iii. both living and non – living things

b. i. temperature

c. i. oxygen

d. i. bacteria

**2. Answer the following questions.**

**a.**

| Biotic Components | Abiotic Components |
|---|---|
| • Biotic components of ecosystem include living organisms. | • Abiotic components comprise of non – living factors. |
| • Examples: plants, animals and | • Examples: temperature, light, soil |

| | |
|---|---|
| humans. | and water. |

**b.** Competition is a type of interaction in which organisms compete for resources that are in limited supply such as food or water. Organisms also compete for space. Competition among members of the same species is called **intraspecific competition.** Whereas, competition between members of different species is called **interspecific competition.**

**c.** It is an interaction between two different animals or some plants and animals or some plants and animals. In this interaction, one organisms attacks, kills and feeds on another organisms. The organisms that kills or attacks the other is called the predator. While the organisms being killed or eaten is called the prey. Examples: fox preys upon insects.

**d.** All these living organisms interact with one another. Their activities are also affected by the abiotic components over there. For example, sunlight provide energy to plants for their growth, which ultimately holds up the animals' community in the garden. Air also interacts with plants by providing a source of carbon dioxide of their food. In this way, abiotic factors like air, sunlight interact with biotic factors like plants and animals and maintain balance in the ecosystem.

**3. Encircle predators from the following pairs.**

a. Frog – Insects
b. Rabbit – Fox
c. Frog - Snake
d. Zebra - Lion

# Chapter:2B

## Relationship in Simple Food Chain

**1. Choose and write the best option for each statement.**

a. i. Producer
b. i. Herbivore
c. i food web
d. ii. food chain
e. iv. All of these
f. iv. All of these

**2. Answer the following questions.**

**a.** If all the food chains within an ecosystem are kept together, they form a food web. In other words, a food web is made of many food chains.

A food chain is a linking chain that shows feeding relationships.

**b.**

| Producers | Consumers |
|---|---|
| • Producers can produce their own food. | • Consumers depend upon producers for their food. |
| • They are autotrophs. | • They are heterotrophs. |
| • Producers are independent. | • Consumers are dependent. |
| • Example: sunflower | • Example: Human |

**c.** Deforestation is the cutting of forests by humans. Forests are the habitats for many species. Human cut down forests for agriculture, wood and housing, etc. They also prey on forest animals which are the predators of many insect pests that destroy forests by eating the stems of trees. In this way, food chain is affected in forests.

**d.** Pollution is defined as any change in the air, water and land that affects living organisms and natural resources in a harmful way. Humans are becoming more and more dependent on technology and industries for better living. But the harmful substances released from industries are causing the pollution of environment. It has affected the food chains.

**e.**

- Overuse of fossil fuels should be minimized as they produce a lot of carbon dioxide in the air. This will cause climate change and affecting the lives of all living beings on the earth.
- Deforestation is also a threat to the ecosystem. We can save the ecosystem by planting new trees.
- Smoke from vehicles has chemicals and poisonous gases which are harmful for the ecosystem. We should practice carpooling instead of driving alone because more vehicles on the road cause more air and noise pollution.
- Walking or cycling is another way of preserving ecosystem.

**3. Answer the following questions.**

Grass Grasshopper Rat Owl

- Food chain
- Grass
- Grasshopper is the herbivore and owl is carnivore.
- The flow of energy in an ecosystem.

Plant → insect → Mouse → Owl

| | | | |
|---|---|---|---|
| Producers | Herbivore | Omnivore | Carnivore |
| Food chain | Consumer | Consumer | Consumer |

# Chapter:3

# Human Health

**1. Choose and write the best option for each statement.**

a. i. Cough

b. ii. Fever

c. i Antipyretics

d. i. Viruses

e. iv. All of these

f. iv. TB

e. iv. Both i and ii

**2. Classify the following diseases into contagious and non – contagious.**

| Contagious | Non – contagious Diseases |
|---|---|
| common cold | diabetes |
| chicken pox | cancer |
| | heart disease |
| | migraine |
| | asthma |
| | allergies |

**3. Answer the following questions.**

**a.**

| Sign | Symptom |
|---|---|
| • Sign is a health issue that can be observed. | • Symptoms is a health issue that cannot be observed. |
| • Sign can be identified by anyone but diagnosed only by doctors. | • These issues cannot be seen, heard , felt or smelled by doctor. |
| • Examples: skin rash and cough. | • Examples: headache and fatigue. |

**b.** The common symptoms of an illness are as follows.

- Fever
- Diarrhea

- Fatigue
- Muscle aches
- Coughing
- Headache

**c.**

| Contagious | Non – Contagious |
|---|---|
| • The diseases that are easily transferred from one person to another are called as contagious diseases. | • The diseases that do not transferred from one person to another are called as non – non contagious diseases. |
| • These are called as communicable diseases. | • These are also called as non – communicable diseases. |
| • Examples: Hepatitis, TB and polio | • Example: Diabetes, cancer and high blood pressure.' |

**d.** Contagious diseases commonly spread through direct transfer of bacteria, viruses and other germs from one person to another. This can happen when an individual with the bacterium or virus touches, cough or sneezes on someone who isn't infected.

**e.** We should maintain ourselves healthy by adopting different habits such as.

**Drinking Clean Water**

Clean water is necessary not only to remain safe from diseases but also to maintain good health.

**Regular Exercise**

Taking exercise regularly helps to maintain a healthy body.

**Getting Enough Sleep**

Getting enough sleep at right time will be helpful to protect your mental and physical health.

**Balanced Diet**

A diet can contains different kinds of food in certain contain quantities to provide nutrients necessary for good health a balanced diet.

**f. Balanced Diet**

A diet can contains different kinds of food in certain contain quantities to provide nutrients necessary for good health a balanced diet.

**Components of a balanced Diet**

**Carbohydrates** comprise about 60% of an individual's diet. The sources of carbohydrates are rise, pasta, potatoes and wheat.

**Proteins:**
The daily human need of protein is 50 grams. Sources of protein are meat, fish, milk, eggs, and beans.
**Fats** sources are dairy products, meat, and fish. They help to maintain body temperature.
**Vitamins** are substances in our food that accelerate and support our body functions. Vitamins make red blood cells and support growth. Sources of vitamins are beef, eggs, fruits and vegetables, etc.
**Minerals** are found in soil. They are consumed by animals and plants; therefore, they are abundantly available in the form of vegetables and meat for humans. Sources of minerals are whole grains, almonds, lentils, beans and many vegetables.
**Fiber:** Beans and pulses are a great source of fiber. Fiber helps in digestion. Fiber is found in vegetables, skin of fruits and bran etc.

**g.** The equality of water is dropping rapidly due to the addition of wastes from industries and agricultures. Unclean water also contains many bacteria, various minerals, and organic substances that effect human health adversely.

**h.** There are two easy ways to purify water for drinking at home;

- Installing water filter at home which remove bacteria from water.
- Use of boil water to make it safe to drink. By boiling, viruses, bacteria, and other germs in water are killed.

**i.** We can prevent contagious or communicable diseases by a number of ways.

**Washing hands**
Washing hands with soap for 20 seconds help to get rid of viruses and bacteria which might be able to make us sick.
**Wearing a Mask**
The mask is meant to protect people from getting the germs from a sick person.
**Vaccination**
Vaccination is another way to prevent the infectious diseases. Vaccine contains a dead or weakened disease – causing germ (bacteria or virus). Once a person has been vaccinated, his/her defense system gets activated.

# Chapter: 4

# Matter and its Characteristics

**1. Choose and write the best option for each statement.**

a. iv. All of them

b. ii. three

c. iii Gases

d. i. Gas > Liquid > Solid

**2. Write three examples of each one.**

| Solid | Liquids | Gases |
|---|---|---|
| rocks | water | oxygen |
| salt | milk | hydrogen |
| sugar | blood | nitrogen |

**3. In the diagram below, add states to labels a – d.**

gas gas

liquid solid

**4. Answer the following questions.**

**a. i.** Anything that has mass and takes up space (volume) is called **matter**.

**ii.** Matter is made of tiny particles called **atoms.**

**iii.** **Mass** is the amount of matter an object has.

**iv.** **Volume** is the amount of space that the matter occupies.

**v.** **Density** is defined as space occupied by an object in relation to the amount of matter in that object.

**vi.** Metals are **malleable** and can be bent or hammered into the desired shape.

**vii.** **Brittle** means any material that is hard but liable to break easily.

**b.** Mass, weight, volume density and electrical conductivity are properties of matter.

Mass

Weight

Volume

Density

Electrical conductivity

**c.** Properties of metals.

- Metals are hard.
- Metals have a mirror like shine known as luster.
- Metals are **malleable** and can be bent or hammered into the desired shape.
- Metals like copper have the ability to be drawn into wires, therefore, they are used in electrical wires for conduction of electricity.

- Metals like iron have the ability to transfer heat; therefore, they are used in cooking pots for conduction of heat.
- Metals have high density.

**d.** The atom in gases are weakly bound together because there is a huge space between the atoms, due to this reason gases can be compressed more easily.

**e.** Materials that allow heat and electricity to pass through them are called conductors, e.g., metals are good conductors. In contrast insulators are materials that don't allow heat and electricity to pass through them. Plastic, wood, paper and Styrofoam are few examples of insulators.

**f.** Solid objects cannot flow because solid objects sink down in water as they have more density.

# Chapter: 5A

# Energy; Its Forms and Energy Transfer

**1. Fill in the blanks and fill those words in the crossword puzzle.**

a. chemical
b. transformation
c. energy
d. heat
e. conservation

**2. Answer the following questions.**

**a.** Following are some ways to conserve energy.

- Turn off the lights while leaving the room.
- Wash dishes and clothes with full loads.
- Hang clothes in open air to dry.
- Use LED light bulbs instead of incandescent bulbs.
- Take shorter and cooler shower.
- Unplug chargers or batteries when not in use.
- Set computer at sleep mode when not in use.

**b.** **Transformation** of energy is also known as conversion of energy. It is a process in which energy is changed from one form to another. Energy changes its form but it can neither be created nor destroyed.

**c.** It is important to conserve the energy by reducing their wastage or loss and by using them wisely. If there are no energy sources, we can no longer power our lighting and heating devices that require plugging into the electricity mains.

**d.** Electricity fans produces mechanical energy electric lights produces light energy. Projector produces light energy. Computer produces heat energy. Exhaust fans produces kinetic energy.

**e.**

- Cycling
- Cook food
- Drive machinery in industries.
- Walking
- Running
- Writing
- Hiking
- Skating
- Playing football
- Swimming

**3. Write down the energy transformation in each device, one has been done for you.**

| | |
|---|---|
| Electrical energy | heat energy |
| Sound energy | electrical energy |
| Electrical energy | heat energy |

# Chapter: 5B

# Light and Sound

**1. Choose and write the best option for each statement.**

a. i. straight
b. iii. rainbow
c. iv seven
d. i. upside down
e. i. vibration
f. i. echo

**2. Think of the ways how light helps us in our daily life.**

a. Sunlight helps plants to make their food.
b. Lights at the front of vehicles help drivers to see other vehicles on roads at night.
c. Traffic, lights gives signals to drivers to tell them when to start when to stop.
d. Light helps us to see.
e. Road lights help us to see at night.

**3. Answer the following questions.**

**a.** Opaque materials do not allow any light to transmit through them due to which light cannot be seen on the other side of the object and casts shadows.

**b.** The whole process in which light rays hit the surface and bounce off is called **reflection**.

When rays of sunlight in the air enter water droplets' the bending of light occurs because of the medium from air to water. This phenomenon is called **refraction.**

**c.** Whatever type of sound we hear, it is always produced by vibrations. Vibration is "to and fro" or "up and down" movement of a body about a certain point.

**d.** When the sound comes back as an echo, it takes time. If the space is not big enough, it would not sound like an echo and the sound that comes back will get mixed up with the original sound.

**4. b. Write down the behaviours of light shown in the following images.**

Reflection Absorption Transmission

# Chapter: 5c

# Transfer of Heat

**1. Choose the correct option for each statement.**

a. i. atoms
b. i. temperature
c. i. kinetic
d. i. joule

**2. Answer the following questions.**

**a.**

| Heat | Temperature |
|---|---|
| Heat is defined as the total amount of kinetic energy that an object contains. | Temperature is defined as average kinetic energy of an object. |

| | |
|---|---|
| Unit of heat is joule. | Temperature is measured in degree Celsius C. |

**b.** It happens because the air around the ice cubes is warm and the heat flows from warmer to cooler objects, this causes the ice cubes to melt.

**c.** A thermometer is an instrument which is used to measure temperature accurately and safely.

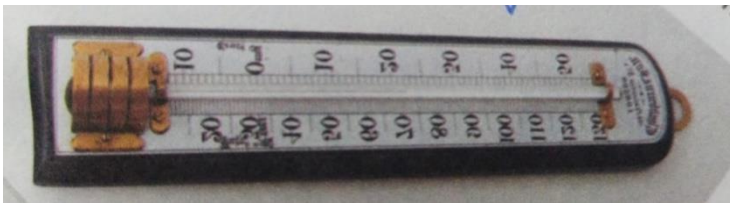
**d.** There are two different types of scales on a thermometer, i.e. Celsius and Fahrenheit. They are written as C and F.

On the Celsius Scale, ice melts at $0^{o}$C and boils at $100^{o}$C. Similarly, on the Fahrenheit Scale, ice melts at $32^{o}$ F and boils at $212^{o}$ F.

**3. Complete the concept map.**

celcius warmer object to cooler object thermometer joule

**4. Draw a thermometer, label it and mark the normal human body temperature on it.**



# Chapter: 5D

# Electricity and Electrical Circuits

**1. Choose and write the best option for each statement.**

a. ii. battery

b. ii. Wire

c. iii switch

d. iii. electrical

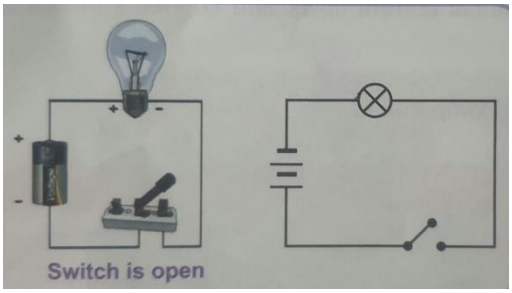
**2. Write down the answer of the given statements.**

**a.** Oven and heater use electrical energy from the socket and convert it into heat energy.

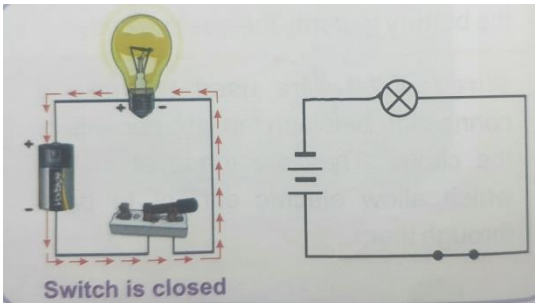
**b.** Electric bulb.

**c.** Electric bell and loud speakers.

**3. Draw a diagram of open and closed circuit using the symbols shown below. Label them as well.**




**Switch is open**




**Switch is closed**

**4. Answer the following questions.**

**a.** Electrical circuit is a path through which electric current flows.

A simple electrical circuit is made of a cell/battery, a bulb, a switch and wires.

**b.**

| Open Circuit | Closed Circuit |
|---|---|
| Electrical circuit is incomplete when the switch is open because the current will not flow through the circuit. When there is a gap in a circuit or it is incomplete, it is known as open circuit. | Electrical circuit is complete, when the switch is closed because the current will flow through the circuit. In closed circuit, the circuit has a complete path for electricity to flow. |

**c.** Energy can change from one form to another form. For example, when you switch on a lightbulb, electrical energy changes to thermal energy and light energy. A car changes energy stored in chemical bonds of gasoline to different form.

**d.** A switch is used to open or close the circuit. If the switch is closed, it means the current can flow. If the switch is open, it means the current stops flowing.