

Mehran Series

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SCIENCE

For Class Six

TEACHER GUIDE

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OUR ENVIRONMENT

EXERCISE

(A) ANSWER THE FOLLOWING QUESTIONS.

Q1: What do you mean by environment?

Ans: All the things which are present around us form our environment.

Q2: How many parts are there of environment? Describe.

Ans: There are two parts of environment.

(1) Living Part

(2) Non living part

Animals and plants are called the living part of environment. Air, water, heat and light are the non-living part of environment.

Q3: Write down the names of five domestic animals.

Ans: Cat, dog, parrot, cow, goat.

Q4: Write down the names of five wild animals.

Ans: Lion, Leopard, lizard, butterfly, snakes.

Q5: Name five birds which can be seen in a village environment.

Ans: Pigeon, crow, sparrow, parrot, eagle.

Q6: Why does the atmosphere of a village is fresh and healthy?

Ans: The atmosphere in villages is calm and quiet. It is also free from smoke due to small number of buses, cars and factories. The air in the open fields is fresh and healthy.

Q7: Why does the air of a city become unclean?

Ans: The moving traffic produces a lot of noise and smoke. Loud noise is harmful for our sense of hearing and smoke makes the air polluted, which is injurious for animals and human health.

Q.8: Why does air of city become unclean?

Ans: Factories also emit smoke and other injurious chemical waste. Chemical waste of factories is responsible for water pollution. In this way water becomes harmful for organisms.

Q.9: Write down the name of ten animals that you have seen in a zoological garden.

Ans: Some cities have Zoological garden where animals like lion, leopard, bear, monkey, deer, ducks, ostrich, zebra, giraffe, elephants, snakes and fishes are kept.

Q10: Why is light useful for plants?

Ans: Light is used by plants in making their food.

Q11: How is air necessary for plants and animals?

Ans: Air contains oxygen, carbon dioxide and other gases. Oxygen is needed for respiration of all living organisms. Plants take in carbon dioxide from air and manufacture their food. They give out water and oxygen which we use for respiration.

Q12: Write down the names of living and non-living components of the environment of a village pond.

Ans: The living things include human beings, plants, trees, birds, frogs, butterflies, fish and many other animals, while water, soil, air, heat and light are non-living components.

(B) FILL IN THE BLANKS WITH CORRECT ANSWER.

01: Soil is a non-living component of environment.

02: Cities have large population.

03: Villages are generally quiet places with clean air.

04: Plants take in carbon dioxide gas from air to manufacture their food.

05: Animals take oxygen gas from air for breathing.

06: Air pollution makes the air of a city unclean.

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- 07: Industrial wastes are responsible for water pollution.
- 08: The atmosphere in a village is free from pollution.
- 09: Village environment provide fresh oxygen to human beings.
- 10: All the things present in our surroundings form our environment.

(C) MATCH THE COLUMN A WITH COLUMN B

COLUMN- A	COLUMN-B
Environment	have large population.
Soil	is used by plants for photosynthesis.
Air contains	all living and non-living things in our surroundings.
Carbon dioxide	is a non-living component.
Cities	oxygen, carbon dioxide and other gases.

(D) WRITE "T" FOR TRUE AND "F" FOR FALSE STATEMENT.

- Cities have large population. (✓)
- Polluted water is good for health. (✗)
- There are many other things which you can observe in pond. (✓)
- The air in the open fields is fresh and healthy. (✓)
- Factories also emit smoke and other injurious chemical waste. (✓)

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Chapter-2

DIFFERENT ENVIRONMENTS OF PAKISTAN

EXERCISE

(A) ANSWER THE FOLLOWING QUESTIONS.

Q.1 Write down the names of three animals that human use for food?

Ans: Cow, goat, sheep.

Q.2 Write down the names of three deserts of Pakistan and where are they found.

Ans: There are three well known deserts of Pakistan. Thar desert in province of Sindh. Kharan desert in Balochistan. Cholistan desert in Punjab.

Q.3 Why do few people live in the desert?

Ans: Deserts are generally hot and dry places. They receive very little rain and thus very few people live there.

Q.4 Why is sea important for us?

Ans: The sea water is salty. It is very rich in animals and plants life. The number and variety of animals and plants found in sea is much larger than animals and plants found on land. A huge amount of fish, prawns and crabs are obtained from the sea for food.

Q.5 What do the plants do for sea animals?

Ans: The plants found in the sea are called sea weeds. They provide food and safe breeding places for sea animals.

Q.6 How does land irrigated?

Ans: The land is irrigated by a vast system of canals.

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Q.7 Name the crops which we use as food.

Ans: We grow different crops for food and other needs. Rice, wheat, cotton, sugar cane and maize are cultivated in different seasons.

Q.8 Write down the properties of desert plants.

Ans: Plants and animals are also found there in small number. Deserts consist of sand and rocks. The desert plants are leafless and thorny.

Q.9 Where are mountain found in Pakistan?

Ans: Mountains are found in north and west of Pakistan. The mountains in the north are very high. They receive plenty of rain and snow fall during winter.

Q.10 Why do the animals of desert hide in burrows at day time?

Ans: Most of the land animals, live in burrows at day time to avoid the heat.

(B) FILL IN THE BLANKS WITH CORRECT ANSWER.

1: Pakistan is an agricultural country.

2: The mountain in the north are very high.

3: The plains of Pakistan are very important.

4: Desert consist of sand and rocks.

5: The stems of desert plants are juicy.

6: Thar desert is situated in province of Sindh.

7: The plants found in the sea are called sea weeds.

8: Most common food of the sea for us is fish.

9: Sea weeds provide safe breeding places for sea animals.

10: There are three well known deserts of Pakistan.

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(D) MATCH THE COLUMN A WITH COLUMN B.

COLUMN- A	COLUMN- B
Pines	are leafless and thorny
Plains of Pakistan	Transportation
The desert plants	are very fertile
Cactus is a	are the mountains trees
The seas are used for	desert plant

LIVING THINGS**EXERCISE****(A) ANSWER THE FOLLOWING QUESTIONS.**

Q.1 How many characteristics are there in living things?

Ans: There are seven characteristics which differentiate living things from non-living things. These characteristics of living things are as follow:

- | | |
|-----------------|------------------|
| (1) Movement | (2) Nutrition |
| (3) Growth | (4) Excretion |
| (5) Respiration | (6) Reproduction |
| (7) Sensitivity | |

Q.2 What happens when you touch the leaves of mimosa?

Ans: If you touch the finger on mimosa leaves (touch me not), close its leaflets and when touch the finger back, they open again after sometimes. Non-living things move only when an external force is applied. A ball and stone can change their position only when they are thrown by you.

Q.3 How can a non-living thing move?

Ans: Non-living things can move only when external force is applied.

Q.4 How do plants manufacture their food?

Ans: Plants manufacture their own food by taking water and salts from the soil and carbon dioxide from air in the presence of sunlight. The process is called photosynthesis.

Q.5 Why do living things grow in size?

Ans: When living things start their life, they are very small in size.

Q.6 How do living things grow in size?

Ans: They take food and grow in size.

Q.7 Why do we close our eyes when lighting flashes in the sky?

Ans: We close our eyes when lighting flashes in the sky because intensity of light is much more which is harmful for our eyes.

Q.8 What do you mean by reproduction?

Ans: Reproduction:
The process by which the organisms produce offspring of their own kind is known as reproduction.

Q.9 Name the substance which are poisonous to living things.

Ans: In living things waste products like carbon dioxide, urine, faeces and water vapours are produced. They are poisonous substances for living things. These substances are excreted with the help of different organs of the body.

A. Lungs and kidneys are the organs which excrete carbon dioxide and urine from the animal bodies.

B. In plants leaves are the organs of excretion.

Q.10 Write down the names of organs of respiration found in the following living things.

- | | |
|----------|---------------|
| (1) Man | (2) Plants |
| (3) Fish | (4) Earthworm |

Ans: (1) Respiratory organ of man:

Lungs are the respiratory organs of man.

(2) Respiratory organ of plants:

Leaves are the respiratory organs of plants

(3) Respiratory organ of fish:

Gills are the respiratory organs of fish.

(4) Skin is the respiratory organs of Earthworm:

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(B) FILL IN THE BLANKS WITH CORRECT WORDS.

- 1: Fish can swim with the help of fins.
- 2: Non-living things move when force is applied.
- 3: Food is very important for good health.
- 4: Plants manufacture their own food.
- 5: Photosynthesis is that process in which plants prepare their own food.
- 6: The process of growth is not reversible in living things.
- 7: Kidneys are the organs which excrete urine.
- 8: Respiration is the process which takes place day and night in the living things.
- 9: Living-things feel and respond to change in the environment.
- 10: During winter we come out and sit under the sun light.

(C) MATCH THE COLUMN A WITH COLUMN B.

COLUMN-A	COLUMN-B
Living things need food	is a poisonous substance
Snake	are the babies of cat
Seeds	creeps
Urine	germinate
Kittens	for growth

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Chapter-4

STRUCTURE OF LIVING THINGS

EXERCISE

(A) ANSWER THE FOLLOWING QUESTIONS.

Q.1 What do you mean by cell?

Ans: All living things whether plants or animals are made up of cells. Cells are the basic units of living organism.

Q.2 What is the use of microscope?

Ans: We use a microscope which help in seeing very small objects.

Q.3 Name the animals and plants which consist of single cell.

Ans: Amoeba is a univellular animal.
Euglena and chlamydomonas are unicellular plants.

Q.4 Write down the names of parts of a cell.

Ans: Parts of cell:

A cell is made up of three main parts.

(1) Cell membrane (2) Cytoplasm

(3) Nucleus

Q.5 Write down the names of outer layers of animal and plant cells.

Ans: Outer layer of plant cell is called the cell wall it is made up of cellulose. Outer layer of animal cell is called the cell membrane. It is made up of cytoplasm.

Q.6 What is cytoplasm?

Ans: Outer layer of animal cell is called the cell membrane. It is made up of cytoplasm.

Q.7 Define: Tissue and organ

Ans: The group of different kinds of tissues form an organ. Heart, liver, kidneys, stomach, intestine and lungs are all organs. These organs are formed by different tissues and perform

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different functions. In plants, stem, leaves and roots are the organs like the organs of animals. They are also formed by many types of tissues.

Q.8 Write three sentences about nucleus.

Ans: In cytoplasm a small rounded or oval body is present which is called nucleus. The nucleus is the controlling centre of the cell. It controls all the activities that take place in the cell.

Q.9 Define, chloroplast, chlorophyll, vacuole.

Ans: Plant cells also have green bodies called chloroplasts which have green substances called chlorophyll. In the centre of cell there is present a vacuole, contains water, salt and some other things. Animal cells do not have chloroplast.

Q.10 What are multicellular organisms?

Ans: The body of most animals and plants consists of a large number of cells such organisms are called multicellular organisms.

Q.11 What is the function of kidney?

Ans: Kidney filters the blood of body.

Q.12 Describe the function of xylem and phloem.

Ans: In plants xylem and phloem are called conducting tissues. Xylem conducts water and salts from the soil to the leaves. Phloem conducts food from the leaves to various parts of the plant.

(B) FILL IN THE BLANKS WITH CORRECT WORDS.

- 1: Basic unit of living organisms is called cell.
- 2: Chlamydomonas controls all activities of cell.
- 3: Animal cell membrane is made up of cytoplasm.
- 4: Jelly like substance of the cell is called cytoplasm.
- 5: Vacuole is a large cavity present in plant cell.

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6: Chlorophyll is present in plant cell.

7: Nucleus controls all the activities of a cell.

8: In plants xylem and phloem are the conducting tissues.

9: Nerve cells combine together and form nerve tissues.

10: Organs are formed by different tissues.

11: Heart, liver, lungs and stomach are the organs of animals.

12: Stem, leaves and roots are the organs of plants.

(C) MATCH THE COLUMN A WITH COLUMN B.

COLUMN-A	COLUMN-B
Amoeba	has many small vacuoles.
Cell wall	is the green substance.
Animal cell	is a single-celled animal.
Chloroplast	from the leaves.
Phloem conducts food	is made up of cellulose.

THE SYSTEM EXERCISE

(A) ANSWER THE FOLLOWING QUESTIONS.

Q.1 What do you mean by the system?

Ans: For performing a function more than one organs of the body work together.

Q.2 Name the organs which form digestive system.

Ans: It consists of the following organs and glands.

(1) **Organs of digestive system:**

Mouth, food pipe, stomach, small intestine and large intestine.

(2) **Gland of digestion**

Liver and pancreas.

Q.3 Describe the function of digestion system.

Ans: The function of this system is to take food, digest it and absorb the digested food, while the undigested food is expelled through out the body.

Q.4 Describe the function of respiratory system.

Ans: It consists of the following organs nose, larynx, wind pipe, and lungs. The respiratory system is meant for breathing. Oxygen from the air is taken into the lungs and carbon dioxide is given out through nose.

Q.5 How many chambers are there in human heart.

Ans: Human heart consists of four chambers. Two upper chambers are called auricles. Two lower chambers are called ventricles.

Q.6 Define: (1) Arteries (2) Veins.

Ans: (1) **Arteries:**

Those blood vessels which carry blood from the heart to all parts of the body are called arteries.

(2) **Veins:**

Those blood vessels which carry blood from the tissues and organs towards the heart.

Q.7 Describe the function of heart.

Ans: The heart is the main organ in blood circulatory system, which circulates the blood within the body through different vessels, the arteries and the veins.

Q.8 Name the organs which form excretory system.

Ans: The excretory system consists of the following organs: Kidneys, Urinary bladder and Urinary tubes.

Q.9 Describe the structure and function of the followings:

(1) Kidneys (2) Urinary tube (3) Urinary bladder

Ans: (1) **Structure and function of Kidneys:**

There are two bean shaped kidneys in human body. Kidneys remove waste material from the blood in the form of urine.

(2) **Structure and function of Urinary tube:**

It is a long tube which arises from each kidney and opens into the urinary bladder. It takes urine from the kidney.

(3) **Structure of function of Urinary bladder:**

It is a sac like structure and it stores urine for sometime.

Q.10 Describe the function of reproductive system.

Ans: **Reproductive system:**

It consists of testes in male and ovaries in female.

(A) TESTES: They produce sperms.

(B) OVARIES: They produce eggs.

The reproductive system is meant for the production of living thing of their own kind.

Q.11 Describe the function of the following systems:

(1) Root System (2) Shoot System

(3) Reproductive System.

Ans: Plants also have a number of systems which are given below:

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(1) Root System:

It consists of primary root, secondary roots, tertiary roots and root hair. Root system is meant for gathering nutrient and water from the soil.

(2) Shoot System

Its main organs are leaves and branches. Branches take water and nutrient, from the root, and carry them to the leaves. Leaves use water and nutrients for making food for the plant.

(3) Reproductive System:

Flower is the reproductive part of the plant. It produces seeds, from which new plants grow.

(B) FILL IN THE BLANKS WITH CORRECT WORDS.

- 1: Ovaries produce eggs.
- 2: The heart, arteries and veins together form circulatory system.
- 3: Liver and pancrease are the digestive glands.
- 4: The brain spinal cord and nerves form the nervous system.
- 5: Upper chambers of the heart are called auricles during respiration oxygen gas is taken into the lungs.
- 6: Kidneys remove urine from the blood.
- 7: Urinary bladder store urine for sometime.
- 8: Testes produce sperms.
- 9: Flower is the reproductive part of the plant.
- 10: Spinal cord is enclosed in the vertebral column.

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(C) MATCH THE COLUMN A WITH COLUMN B.

COLUMN- A	COLUMN- B
Ovaries are the	brain and spinal cord
Nerves arise from	respiratory organs
Roots absorb water	female reproductive part
Lungs are the	lower chambers of heart
Ventricles are the	from the soil

Chapter-6

CLASSIFICATION OF LIVING THINGS

EXERCISE

(A) ANSWER THE FOLLOWING QUESTIONS.

Q.1 What are aquatic and terrestrial organisms?

Ans: **Aquatic animals:**

Those organisms which live in water are said to be aquatic organisms.

Terrestrial animals:

Those organisms which live on land are said to be terrestrial organisms.

Q.2 Make a list of aquatic plants and animals from the followings: Hydrilla, mango, fish, camel, rabbit, elodea, shark, lotus, lion, vallisnaria, tortoises, octopus.

Ans:

Aquatic Plants	Aquatic animals
Hydrilla	Fish
Eluder	Shark
Lotus	Tortoise
	Octopus

Q.3 Make a separate list of each of the following animals which have backbone and which do not have backbone.

Cockroach, Cow, Hen, Butterfly, Horse, Earthworm, Prawn, Snake Ostrich, Camel, Starfish, Mosquito, Rat, Cat, Lizard, Housefly, Lion, Snail, Spider, Donkey.

Ans:

Animals which have backbone	Animals which do not have back bone
Cow	Cockroach
Horse	Butterfly
Ostrich	Earthworm
Camel	Prawn
Rat	Starfish
Cat	House fly
Lion	Snail
Hen	Mosquito
Donkey	Spider
Lizard	
Snake	

Q.4 Make a separate list of each of the following animals which are Herbivorous, Carnivorous, Omnivorous and Parasites.

Fox, Elephant, Dog, Cat, Donkey, Monkey, Cow, Leopard, Goat, Crow, Man, Rhinoceros, Shark, Owl, Frog, Eagle, Wolf, Deer, Donkey, Crocodile.

Ans:

Herbivorous	Carnivorous	Omnivorous	Parasites
Elephant	Dog	Man	Frog
Donkey	Crocodile	Crow	Owl
Cow	Leopard	Monkey	
Goat	Wolf		
Deer	Cat		
Rhinoceros	fox		
	Eagle		
	Shark		

Q.5 What are autophytes plants? How do they prepare their food?

Ans: Those plants which manufacture their own food are known as autophytes. They are green in colour due to the presence of green colouring

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matter called chlorophyll. They process by which autotrophic plants prepare their food is called photosynthesis.

Q.6 What are saprophytes? Give two examples.

Ans: Those plants which do not have chlorophyll and live on dead and decaying organic substances like bread, pieces of dead wood or leather are called saprophytes. Example of such plants are mushroom, bread mould etc.

Q.7 What are the functions of bony framework in vertebrate animals?

Ans: **Function of bony framework in vertebrate animals:**

Vertebrate animals possess a bony framework in their body. This bony framework gives shape and support to the body. This bony framework gives shape and support of the body. It also processes delicate organs of the animals such as the brain, heart and lungs. Vertebral column consists of small bones known as vertebrae.

Q.8: Make a separate list of each of the following plants which are trees, shrubs and herbs, neem, china-rose, grasses, rose, mango, cotton, eucalyptus, marigold, pumpkin, sheesham, dog flower, pinus.

Ans:

Trees	Shrubs	Herbs
Neem	Grasses	
China rose	Pumpkin	
Mango	Cotton	
Sheesham		
Pinus		
Rose		
Marigold		
Dog flower		

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(B) **FILL IN THE BLANKS WITH CORRECT WORDS.**

- 1: All living things are classified into animals and **plants**.
- 2: **Desert** is a hot and dry place.
- 3: Some animals (host) from which they obtain **ready made** food.
- 4: Vertebral column consists of small bones called **vertebrae**.
- 5: The stem of **herbs** have not bark.
- 6: Those animals which eat plants only are called **herbivore**.
- 7: Those animals which obtain ready made food are called **producer / auto troph**.
- 8: **Green** plants prepare their own food.
- 9: The green colouring matter of the plant is called **chlorophyll**.
- 10: Tape worms live inside the **intestine** of man.

(C) **MATCH THE COLUMN A WITH COLUMN B.**

COLUMN – A	COLUMN – B
Cactus	↗ carnivorous
Terrestrial organisms	↘ parasitic plant
Jelly-fish	↖ lice and bed bug
Lions are	↗ invertebrate
Parasites animals	↘ live on land

AIR AROUND US

EXERCISE

(A) ANSWER THE FOLLOWING QUESTIONS.

Q.1 What do you mean by atmosphere?

Ans: Our earth is surrounded by a thick layer of air. It is called atmosphere. It extends up to 100 km above us, it is thickest at sea level but so thin at high mountain attitudes that it because difficult to breathe.

Q.2 Explain with an experiment that air occupies space.

Ans: Air occupies space:

Experiment:

Take a balloon and blow air into it by your mouth. The balloon increases in size. The size of the balloon increase further if more air blown in to it. This show that air occupies space.

Q.3 Explain with an experiment that air has weight.

Ans: Air has weight:

Experiment:

Take a straight stick, and tie a thread in the middle of it. Then fill a balloon with air blowing into it and tie it with the help of a thread at one end of the stick. Take another empty balloon and tie it at other end of the stick. Now lift the stick in the middle. You will observe that the end of the stick having the air filled balloon is tilted down. This shows that air has weight.

Q.4 Explain with an experiment that air contains water vapours.

Ans: Gaseous form of water is called water vapours. Air contains water vapours. The amount of water vapours in the air determines its humidity. The greater amount of water vapours

in the air the greater is the humidity. Humidity is generally higher in the rainy season.

Q.5 We do not feel air exerts pressure on our body. Give reason.

Ans: You know that we are surrounded by air. Air extends about 100 km above us. You also know that air has weight. Thus we are under great pressure due to the weight of air above us. This pressure has been calculated to be 1.03 kg on every square cm of our body. The pressure exerted by the air is called atmospheric pressure. Such a high pressure on our body would be sufficient, but we do not feel it. The reason is that air exerts pressure on our body from all sides and our body is so made that its inside pressure equals to the outside pressure of the atmosphere. Hence we do not feel pressure exerted by air on our body.

Q.6 What do you mean by air pressure?

Ans: In the world almost all things are surrounded by air, air has weight and it occupies space. Thus we are under great pressure of air.

Q.7 Describe the structure and function of mercury barometer.

Ans: Structure and function of mercury barometer.

A mercury barometer consists of a graduated glass tube about one meter (100 cm) long. One of the ends of the tube is closed. The tube is filled with mercury taking care that no air bubbles remain in it.

The open end is covered with a thumb and then inverted carefully in a cup containing mercury.

When the open end of the tube is lowered into the cup then the mercury column in it falls down to about 76 cm above the mercury in the cup at the sea level.

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Therefore the pressure of 76 cm column of mercury is considered as a normal.

The height of the mercury changes as the barometer is taken to high attitude.

For instance, the height of the mercury column is less on the top of high mountain than it is at sea level.

Because the air pressure on mountains is less than it is at sea level.

Q.8 Describe the structure and function of Aneroid barometer.

Ans: Structure and function of Aneroid barometer:

An aneroid barometer consists of thin walled metallic box from which the air has been removed.

A spring is attached to the centre of the box. This is connected to a pointer that moves on a scale on the top of the box.

When the air pressure increase the top surface of aneroid barometer is pressed in.

This push the spring down and causes the pointer move on the scale to indicate the pressure of the air.

Q.9 Why do mountain climber take oxygen cylinder with them? Give reason.

Ans: Mountain climbers always to carry oxygen tanks to assist their breathing.

Q.10 Why does water not enter an empty glass when it is carefully envrerted in a bowl full of water? Give reason.

Ans: Take a glass and place some pieces of ice in it. After sometime you will notice small droplets of water on the outer surface of the glass. Where have these droplets of water vapours present in the air. These are due to water vapours that are present in air. Water varpours condense on the outer surface of the glass and form droplets of water.

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(B) FILL IN THE BLANKS WITH CORRECT WORDS.

01: Atmosphere extends up 100 km above us.

02: K-2 peak is 8,600 meters high.

03: Humdity is generally higher in the rainy season.

04: The amount of water vapours in air is called humidity.

05: 1.03 kg of air pressure is an every square cm.

06: Mercury is not used in aneroid barometer.

07: Air pressure on land is less than at sea level.

08: The greater amount of water vapours in air the greater is the humidity.

09: Matter occupies space and has weight.

10: It is difficult to climb on high mountain.

(C) MATCH THE COLUMN A WITH COLUMN B.

COLUMN-A	COLUMN-B
Atmosphere is thickest	in simple barometer
Mercury is not used	normal pressure
It is difficult to breath	occupies space
76 cm shows a	at sea level
Air	on high mountain

COMPOSITION OF AIR

EXERCISE

(A) ANSWER THE FOLLOWING QUESTIONS.

Q.1 Name the gases which are present in air and write their composition.

Ans: Air is mixture of the gases; Nitrogen Oxygen, Carbon dioxide and rare gas Argon. It contains other gases also but they are in very small amount. The composition of air is shown below:

Nitrogen 78%

Oxygen 21 %

Carbon dioxide 00.03%

Argon 00.05%

Apart from these gases air also contains water vapours and dust particles.

Q.2 Write down four importances of Nitrogen.

Ans: Nitrogen does not burn and is used to prevent fires. The space above the oil in a petrol oil tanker is filled with nitrogen to prevent fire. In aircraft, before a flight, the refuelling lines are washed with nitrogen to prevent fire. It is used for making fertilizers. Plants use nitrogen for making proteins.

Q.3 Prove with an experiment that oxygen helps in burning.

Ans: Oxygen help in burning:

EXPERIMENT:

Take a trough and fix a candle at its centre on a stone. Now pour water in the trough in such a way that a part the candle remains above the surface of the water. Hold and empty gas jar above the candle. Light the candle and then place the gas jar down over it. After sometime

the candle extinguishes and water from the through begins to rise in the gas jar. This is because oxygen in the jar is used up for burnings and the space left in the jar is filled by rising water in the jar. This proves that oxygen helps in burning.

Q.4 Write down four importances of oxygen.

Ans: (i) Oxygen is used in hospitals for artificial breathing.

(ii) It is used as a fuel in rockets, space ships and aircraft flying at high altitudes.

(iii) Mountain climbers take oxygen cylinder for breathing at high altitudes.

(iv) Sea divers also take oxygen cylinder when they work under water.

Q.5 Why do mountain climbers or sea divers take oxygen cylinder with them?

Ans: (i) Mountain climbers take oxygen cylinder for breathing at high altitudes.

(ii) Sea divers also take oxygen cylinder when they work under water.

(B) FILL IN THE BLANKS WITH CORRECT WORDS.

01: Sodium nitrate is a compound of nitrogen gas.

02: Nitrogen gas is used to prepare fertilizer.

03: Oxygen is used as fuel in rockets.

04: During photosynthesis oxygen gas is involved.

05: Carbon dioxide is used to prepare soft drinks.

06: Dry ice is used in cold storages.

07: Nitrogen gas is used in an oil tanker to prevent fire.

08: Green plants absorb carbon dioxide from air for photosynthesis.

09: During respiration animals take oxygen gas and give out carbon dioxide gas.

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- 10: A burning candle burns more brightly in oxygen gas.
- 11: Air contains only 00.03 % of carbon dioxide.
- 12: Plants use nitrogen for making proteins.

(C) MATCH THE COLUMN A WITH COLUMN B.

COLUMN-A	COLUMN-B
Oxygen is used	as soft drinks
Carbon dioxide is used	carbon dioxide in night
Nitrogen is used	is a salt of nitrogen
Plants give out	as fuel
Potassium nitrate	to prepare fertilizers

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Chapter-9

WATER EXERCISE

(A) ANSWER THE FOLLOWING QUESTIONS.

Q.1 Why does earth look blue from space?

Ans: The earth look blue when it is seen from space many astronauts have taken photo graphs of the earth from space.

Q.2 How many parts of the earth are covered with water?

Ans: About one-third part of the earth is covered with water.

Q.3 Write down three properties of water.

Ans: (i) Water is a colourless and tasteless.

(ii) It boils at 100°C and freezes at 0°C.

(iii) It has the ability to dissolve many substances like sugar, salt, acid, vinegar and even gases.

Q.4 Write down five uses of water.

Ans: (i) Water is used for drinking.

(ii) It is used for cooking food.

(iii) It is used for moping.

(iv) It is used for washing clothes.

(v) It is used for generate electricity.

Q.5 What are the sources of water?

Ans: Sources of water:

There are many sources of water. For example:

(i) Rain water (ii) River water

(iii) Sea water (iv) Pond water

(v) Well water

Q.6 Why do we say that water is a universal solvent?

Ans: It has the ability to dissolve many substances like sugar, salt, acid, vinegar and even gases.

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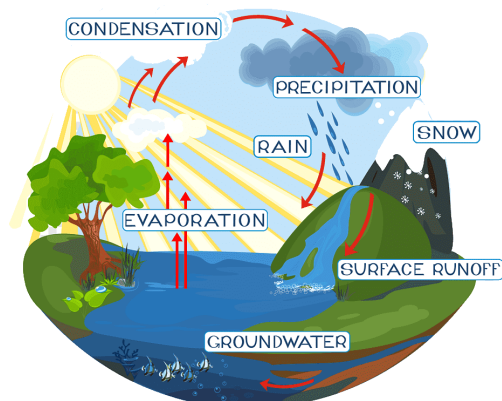
Due to this, water is known as the universal solvent.

Q.7 Why do we say that rain water is the purest form of water?

Ans: The rain is a major source of water. The rain water is pure e.g. tasteless odourless and colourless. That's why we can say that the rain water is the purest form of water.

Q.8 Draw the diagram of water cycle.

Ans:



Q.9 Describe the water cycle in nature in your own words.

Ans: The sun shines on the oceans, lakes, ponds and river streams. It also shines every where on land. The heat of the sun vapours water. These vapours rise in the atmosphere and form clouds. The wind drifts these clouds to colder regions where tiny drops of water are formed due to condensation. These droplets get converted into bigger drops and even may freeze to snow and fall on the ground as rain and snow. In this way, the total quantity of water on our earth remains almost constant.

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The continuous transfer of water between different reservoirs on the earth is called the water cycle.

Q.10 How many states of water are there? Name them.

Ans: Water exists in three states, solid, liquid and gas. In the liquid state it is called water. In the gaseous state it is called steam or vapours and in solid it is called ice. In all the three states, its chemical composition remains the same i.e two atoms of hydrogen and one atom of oxygen make one molecule of water steam or ice. The formula of water is H_2O .

Q.11 Which part of plant excretes excess water?

Ans: Leaves excrete excess water from plant.

Q.12 Define, Solid, Liquid and Gas.

An: **Solid:**

When the temperature is decreased to $0^{\circ}C$, water freezes and it changes into ice. This is solid state of water.

Liquid:

When we heat the ice then it changes into water. In the liquid state it is called water.

Gas:

If the temperature is increased up to $100^{\circ}C$, water boils and changes into steam. This is called gaseous state of water.

(B) **FILL IN THE BLANKS WITH CORRECT WORDS.**

- 1: About seventy percent of the earth is covered by water.
- 2: 1.33 billion cubic km of earth is covered with water.
- 3: Atmosphere contains water in the form of water vapours.

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- 4: Water boils at **100**°C and freezes of **0**°C.
5: **Plants** absorb water from the soil.
6: It is **process** which determines the state of water.
7: **Transpiration** is a process through which water is excreted from plants.
8: Solid state of water is called **ice**.
9: **Water** have a definite volume but no definite shape.
10: Sea water contains about **3.5** % dissolved substances.
11: Rain water dissolves **oxygen** and nitrogen oxide from air.
12: Formula of water is **H₂O**.

(C) Match the column A with column B.

COLUMN-A	COLUMN-B
Definite shape and volume	universal solvent.
Water is a	stomata
Vapours Form	solid
Leaves have	environment clean
Rain keeps	clouds

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Chapter-10

COMPOSITION OF WATER

EXERCISE

(A) ANSWER THE FOLLOWING QUESTIONS.

Q.1 How will you get water from hydrogen and oxygen gases?

Ans: Water is a compound of two gases, hydrogen and oxygen. When hydrogen and oxygen gases are burnt they combine and form water.

Q.2 Define hard and soft water.

Ans: (1) **Hard water:**

(i) It contains soluble compounds of calcium and magnesium.

(ii) Hard water is not fit for drinking because it causes is wasted.

(iii) Hard water is unfit for use in steam engines, in boiler and turbine.

(2) **Soft water:**

(i) Soft water is free of the soluble salts of calcium and magnesium.

(ii) So it gives lather and washing is properly done in this type of water.

Q.3 Name the compounds which are present in hard water.

Ans: **Hard Water:**

It contains soluble compounds of calcium and magnesium. The calcium and magnesium combine with soap and form curd or scum instead of lather and the washing can not be done properly and a lot of soap is wasted.

Q.4 Write two disadvantages of hard water.

Ans: (i) Hard water is not fit for drinking because it causes stomach disorders.

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(ii) Hard water is unfit for use in steam engines, in boiler and turbine.

Q.5 Describe with an experiment the process of decantation.

Ans: Take some calcium carbonate powder and mud. Add then in a glass of water and mix with a spoon. They do not dissolve but remain scattered through out the water. Water becomes cloudy and is called suspension. If this suspension is left undisturbed for some time the fine particles will slowly settle down at the bottom of the glass. The above clean water can be poured carefully into another glass. This process is called decantation.

Q.6 Describe with an experiment the process of filtration.

Ans: When a liquid contains insoluble particles such as muddy water the pure water may be obtained by filtration.

Experiment:

Take a filter paper and place it in a funnel pour muddy water into filter paper. Drop by drop clear water begins to collect in a beaker while solid particles are left on the filter paper.

Q.7 Why is chlorine gas passed through the filtered water?

Ans: A small amount of chlorine gas is passed through the filtered water to kill the germs. It can be removed by boiling water before using it for drinking purpose.

Q.8 How does river and canal's water filter?

Ans: River and canal water contains dirt, dust humus and other impurities. When it is supplied for drinking most of these impurities are removed from water by filtering it through sand and gravel filter beds.

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Q.9 What happens when hard water is boiled?

Ans: When hard water is boiled the soluble salts of calcium and magnesium are decomposed and settle down as insoluble salts. Boiling destroys bacteria and it makes water suitable for drinking.

Q10 What is distillation?

Ans: The purest water is obtained by distillation. In this process, first water is heated and changed into steam and then steam is cooled to get water back.

Q11 Explain with an experiment the processes of distillation.

Ans: Take a hard glass test tube. Pour some water in it. Add $\frac{1}{2}$ teaspoon full of salt and shake it to dissolve the salt.

Pass a delivery tube through a cork and fit it into the mouth of the test tube.

Put a test tube under the other end of the delivery tube and place it in beaker of water. Heat the water of the test tube until it starts boiling and steam will pass into the test tube where it will be cooled and condensed to give water. When all the water from the test tube changes into steam then you will see salt is left behind in the test tube.

Q12 Write two uses of distilled water.

Ans: (i) Distilled water is used for scientific and medical purposes.

(ii) Distilled water is used in car batteries.

Q13 What are the problems associated with desalination of sea water?

Ans: (i) There is a lot of heating required to distill the water. It makes the process uneconomical.

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(ii) After distillation of sea water huge quantity of salts are left behind and disposal of these salt becomes a great problem.

(iii) The distilled water is devoid of useful salts which we need to add to make it good for maintaining our health.

Q14 What is the reaction of lime water on soluble compound in water?

Ans: Lime water changes soluble compounds of calcium and magnesium into insoluble compounds of calcium and magnesium. These insoluble salts settle down and clean water is supplied to the homes.

(B) FILL IN THE BLANKS WITH CORRECT WORDS.

- 1: In hard water the compounds of calcium and magnesium are present.
- 2: Soft water gives good lather of soap.
- 3: In filtration, filter paper is used.
- 4: A calculated amount of lime water is added in clark's method.
- 5: Distilled water is used in batteries.
- 6: Hard water is unfit for drinking.
- 7: In hard water soap does not give leather.
- 8: A water molecule consists of two parts of hydrogen.
- 9: The distilled water is devoid of useful salts.
- 10: When steam is cooled it changes into water vapours.
- 11: Water is a compound of two gases.
- 12: After distillation of sea water salt is left behind.

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(C) MATCH THE COLUMN A WITH COLUMN B.

COLUMN-A	COLUMN-B
Purest water is obtained	Bacteria
Water's germs are killed	by distillation
Hard water contains	form scum
Boiling destroy	by chlorine gas
Soap is hard water	Calcium and Magnesium salts

ENERGY

EXERCISE

(A) ANSWER THE FOLLOWING QUESTIONS:

Q.1 What do you mean by energy? Give some examples.

Ans: **Energy:**

The ability to do work is called energy.

Example of energy:

(i) A football moves when a player supplies energy to a foot ball by his foot.

(ii) A fan moves when electrical energy is supplied.

(iii) A car moves with the energy of petrol.

(iv) Ice melts when heat energy is supplied.

Q.2 Define kinetic energy and give some examples.

Ans: Kinetic Energy:

When a body is capable of doing due to its motion is called kinetic energy.

Or

The ability of a body to do work due to its motion is called kinetic energy. When the car is turned on and the petrol is heated, the kinetic energy allows the car to move.

Q.3 Define potential energy and give some examples.

Ans: **Potential energy:**

Potential energy is energy that is stored and not being used.

Example of potential energy:

Petrol in a car has potential energy when the car is turned off.

Q.4 Define Mechanical energy and give one example.

Ans: **Mechanical Energy:**

The energy which due to motion or position of a body is known as mechanical energy.

Example of mechanical energy:

A moving car is an example of mechanical energy.

Q.5 Define Electrical energy. What are its uses?

Ans: **Electrical energy:**

The energy which is due to the movement of electrons in a body like conducting wires is known as electrical energy.

Uses of electrical energy:

We use electrical energy in devices such as electric fan, electric bell, electric bulb, electric motor, telephone, radio, tube light, refrigerator, television etc.

Q.6 What is chemical energy? Give some examples.

Ans: Chemical energy is actually the potential energy which is stored in chemical substances like food, petrol coals, gas oil, wood and dry battery cell. We get chemical energy from our food. We use this energy in walking, running, playing, keeping, our bodies warm and many other ways.

Q.7 What is light energy? How do we get light energy through artificial sources?

Ans: The main source of light energy is the sun. Due to this energy we see things. The sun gives us both light and heat. The sun is a natural source of light energy. Light is also produced through artificial sources. We get light by burning candles, oil and gas lamp. We also get light from torch, electric lamps, tube lights and bulbs.

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Q.8 Define heat energy? How do we get heat energy from different sources?

Ans: The main source of heat energy is the sun. This keeps our world lighted and warm. Total energy in a body is called heat energy. We get food which burns in our body and produces heat energy. This heat energy keeps our body warm and gives us the energy to move and work.

Q.9 What is nuclear energy? Where is it stored?

Ans: You know that matter is made up of very small particles called atoms. Nuclear energy is stored in atom. When the nucleus of an atom breaks up by unclear process then this energy is produce.

Q.10 Why is light and heat energy of the sun are useful for living things?

Ans: The light and heat energy of the sun is useful because these both types of energy are very important for the survival of life. Plants prepare their food with the help of sunlight. The heat energy of the sun keep us warm.

(B) FILL IN THE BLANKS WITH CORRECT WORDS.

- 1: Ice melts when heat energy is supplied.
- 2: Energy is the ability of a body to do work.
- 3: A falling stone has gravitational energy.
- 4: A book lying on the table has potential energy.
- 5: Kinetic and potential energies are the types of mechanical energy.
- 6: Atomic energy is due to movement of electrons.
- 7: Chemical energy is also the potential energy.
- 8: Chemical inside the dry cell has chemical energy.
- 9: Plants use light energy to prepare their food.
- 10: Food burns in our body and produces chemical energy.

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11: Nuclear energy is stored in atoms.

12: Nuclear plants produce large amount of nuclear energy.

(C) MATCH THE COLUMN A WITH COLUMN B.

COLUMN-A	COLUMN-B
Moving objects possess	has potential energy
An inflated balloon	light energy
A dry cell	kinetic energy
Green plants use	nuclear energy
Atoms have	has chemical energy

NATURAL RESOURCES OF ENERGY

EXERCISE

(A) ANSWER THE FOLLOWING QUESTIONS.

Q.1 How do we get rain in the presence of the sun?

Ans: The sun is the major source that changes the water into water vapours, then vapours form clouds. Then it rains and we enjoy in the rain.

Q.2 Describe that the sun is important for life.

Ans: The sun is important for life because the sun is the major source of energy. It gives us both light and heat. The energy from the Sun is used for different purpose.

Q.3 Write two uses of solar energy.

Ans: (i) Energy from the sun keeps our world lighted and warm. Without the sun energy our world would have been cold and dark that no life have been possible on it.

(ii) The sun rays falling on the sea makes its water to evaporate and form clouds from which we get rain.

Q.4 Green plants use light energy from the sun. Why?

Ans: Green plants use light energy from the sun and prepare their food.

Q.5 How can we use energy from the moving water?

Ans: (i) Energy from moving water can be used to do the following works.

(ii) It can be used to turn water wheels. These moving wheels are used in grinding and running machine in factories.

(iii) Moving water turns special water wheel called turbines are used to run generators to produce electricity.

Q.6 How were the ancient organisms change into fossils?

Ans: Millions of years ago bodies of land and sea animals and plants buried it is also a source of energy. By the action of heat pressure and bacteria the ancient organisms were changed into fossils.

Q.7 Write down the names of substances which are called fossils fuel.

Ans: These are coal, oil and natural gas, we call these substances as fossil fuels.

Q.8 Write down the uses of coal, oil and natural gas.

Ans: The energy form coal is used to convert water into steam which is used to run turbines to produce electricity.

(ii) Oil and natural gas are used to run cars buses, aeroplanes, factories and electricity plants.

Q.9 How can the energy of wind be used?

Ans: It is also known as tidal energy. Waves are continuously formed over the surface of sea by blowing strong wind. These waves posses great kinetic energy. Scientists are trying to use wave energy for the generation of electricity or for running machines.

Q.10 How is the energy of moving water useful?

Ans: The energy of moving water useful due to following reasons.

(i) It can be used to turn water wheels. These moving wheels are used in grinding and running machine in factories

(ii) It is used to turn turbines to run generator for producing electricity.

Q.11 What is the main use of geothermal energy?

Ans: It is also called geothermal energy. The temperature deep down the earth is so high that

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even rocks are converted into liquid form. These liquid rocks can be seen when a volcano erupts. In some areas under the earth due to geothermal energy, water is trapped in the form of steam.

Q.12 What are the uses of magnetic energy?

Ans: Magnetic energy can be used as following purposes:

(i) Heavy pieces of iron are lifted and transported quickly and safely from one place to another place.

(ii) This energy is used in separating iron from mixture containing magnetic and non-magnetic substances.

Q.13 Give some examples of the conservation of energy from one form to another?

Ans: We have learnt different types of energy. Following examples help you to understand how one form of energy can be converted into another form.

(i) An inflated balloon has potential energy. When it is released its potential energy changes into kinetic energy and the balloon flies in air in a zig zag manner.

(ii) The chemical energy in the food we eat converts to heat energy which keeps our body warm.

(iii) Electrical energy changes into heat energy when it passes through heater and light energy when passes through tube light.

Q.14: Describe the law of conservation of energy.

Ans: **Law of conservation of energy:**

One of the most important laws of science that energy can easily be changed from one form to another form but it can not be destroyed or created. This law is known as law of conservation of energy.

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(B) **FILL IN THE BLANKS WITH CORRECT WORDS.**

1: Energy from the sun is also called **solar** energy.

2: When water boils it converts into **steam**.

3: Coal, oil and natural gas are called **fossil** fuel.

4: Blowing wind has great **kinetic** energy.

5: **Wind energy** are used for pumping water and grinding grading.

6: Sail boats and ships use **wind** energy to run.

7: Energy of the waves also called **wave** energy.

8: Geothermal energy is used to erupt **volcano**.

9: **Magnetic** energy is used in separating iron from mixture.

10: An inflated balloon has **potential** energy.

11: **Chemical** energy of food is converted into heat energy.

12: Energy can neither be created nor be **destroyed**.

(C) **MATCH THE COLUMN A WITH COLUMN B.**

COLUMN-A	COLUMN-B
Magnetic energy	keeps the earth warm
Coal energy converts	is used in electric bell
Moving water	generate electricity
Energy of the sun	turns water wheels
Steam is used to	water into steam

STATIC ELECTRICITY**EXERCISE****(A) ANSWER THE FOLLOWING QUESTIONS:**

Q.1 How many types of electricity are there?

Ans: There are two types of electricity namely static electricity and current electricity.

Q.2 What do you mean by static electricity?

Ans: The charge produces in this way is called static electricity. Static means “at rest” or “not moving”. In static electricity the electrons do not move and the charge normally at rest.

Q.3 How will you prove that like charges repel each other?

Ans: Take two glass rods. Rub each of them with a piece of silk. Suspend one of them by a thread so that it can move freely in air. Now bring other rod near it. The suspended rod is pushed away. As the two glass rods have been rubbed with same material, similar charges have been produced on both rods. Similar charges have been indicated on two rods by writing plus sign (+). Thus it can be said the similar charges or like charges repel each other.

Q.4 Prove with experiment that like charges attract each other.

Ans: Take an ebonite rod and rub it with woolen cloth. Suspend it with a thread. Now take a glass rod and rub it with silk cloth. Bring the glass rod near the suspended rod. You will see the suspended ebonite rod is attracted towards the glass rod. If the charge had been the same the ebonite rod would have been repelled.

Q.5 What happens:

(i) When a plastic rod is rubbed with silk?

(ii) When a plastic comb is combed quickly in your dry hair?

Ans: (i) Take a plastic ruler and rub it with a piece of silk for some time. Now bring the ruler near some small pieces of paper. You will see that pieces of paper are attracted to the ruler, this is because the ruler is electrically charged.

(ii) Similarly take a plastic comb and comb your dry hair quickly a number of times. Now hold the comb near your hair and observe in a mirror.

Q.6 How many basic particles of an atom? Describe each.

Ans: There are three basic particles of an atom. Electron, Proton and Neutron. Electron has negative charge and Proton has positive charge while neutron is chargeless. Protons and neutrons present in the central part of an atom called nucleus, while electrons revolve around the nucleus in different orbit.

Q.7: Why an ebonite rod become negatively charged if it is rubbed with wool?

Ans: When an ebonite rod is rubbed with woolen cloth, the rod pulls electrons away from the wool. These extra electrons on the rod give it a negative charge (-).

Q.8 Why a glass rod become positively charged if it is rubbed with silk?

Ans: When a glass rod is rubbed with silk cloth, the silk removes electrons from the rod, the silk becomes negatively charged as it gains negatively charged electrons. Since the glass rod loses negatively electrons, it results in the

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increase of positive charges (+) so rod is positively charged.

Q.9 What is gold leaf electroscope? Describe its structure.

Ans: An electroscope is an instrument used for the detection and testing of small electric charges. It consists of a brass rod with a round knob at the upper end and two thin gold leaves attached to the lower end of rod. Therefore it is called the electroscope. The brass rod possesses through a cork so its lower end remains inside the glass container.

Q.10 When a charged rod bring near the brass knob of the electroscope the leaves diverge? Why?

Ans: Bring a charged rod near the brass knob. You will see the leaves of the electroscope open up and diverge from each other because similar charges repel each other.

(B) FILL IN THE BLANKS WITH CORRECT WORDS.

- 1: Static electricity can be produced by rubbing rod with silk or wood.
- 2: In static electricity electrons do not move.
- 3: Similar charges repel each other.
- 4: Negative, charges repel each other.
- 5: Unlike charges attract each other.
- 6: Positive and negative charges attract each other.
- 7: Protons and neutrons are present in the nucleus.
- 8: Electrons revolve around the nucleus.
- 9: Neutron is chargeless particle of an atom.
- 10: A rod becomes negatively charged when it gains excess electrons.

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(C) MATCH THE COLUMN A WITH COLUMN. B

COLUMN-A	COLUMN-B
Static means	repel each other
Similar charges	pulls electrons
Unlike charges	at rest
Ebonite rod	positive particles
Protons are	attract each other

CURRENT ELECTRICITY

EXERCISE

(A) ANSWER THE FOLLOWING QUESTIONS.

Q.1 How is current electricity differ from static electricity?

Ans: In static electricity electrons do not move but in current electricity electrons flow in a wire of certain material from one end to the other.

Q.2 Which type of electricity do we use in our homes?

Ans: We use current electricity in our home.

Q.3 Write the names of appliances in which current electricity is used.

Ans: We use current electricity in our homes for lighting and operating electrical appliances such as fans, irons, refrigerators, radio and television.

Q.4 What is a dry cell? Write its working.

Ans: Dry Cell:

A dry cell is a device which converts the chemical energy into electrical energy. Dry cell appears to be dry from outside but it contains some moist chemicals inside. These chemical are contained in zinc container with a carbon rod in the middle. Now take torch bulb and connect it to a dry cell through copper wire as shown in figure. The bulb begins to glow because when you connect the wires the chemical action starts in the cell. Electrons of carbon rod begin to flow towards the zinc container due to this the carbon rod becomes positively charged and the zinc container becomes negatively charged. As a result the electrons begins to flow in the wire

and when these electrons pass through the bulbs wires make the bulb glow.

Q.5 How many types of circuits are there?

Ans: There are two types of circuit:

(i) Closed circuit (ii) Open circuit

(i) **Closed circuit:**

When the circuit is complete it is said to be a closed circuit.

(ii) **Open circuit:**

When the circuit is broken it is said to be open circuit.

Q.6 What is a solar cell? How does it work?

Ans: The sun energy can be changed into electricity. Solar cell is used for this purpose. It is made up of special material called as silicon. When the sunrays fall on a solar cell, energy from the sun is changed to electrical energy. Electrical energy from solar cells can make a radio play.

Q.7 How do we get chemical energy. Write its two uses?

Ans: Dry cells used in torches, radio, clocks and electrical toys and trucks are sources of chemical energy.

Q.8 How can mechanical energy be converted into electrical energy?

Ans: Water stored in a dam is used for producing electricity. The water of the dam is allowed to fall on turbines which rotates the turbines. The turbines are connected to electric generations which produce electricity. In this way mechanical energy of the generator changes into electrical energy. Electricity is produced by this process at hydro electric power station such those at Tarbela, Mangla and Warsak.

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Q.9 What does steam do to the turbines?

Ans: Water is converted into steam by heating it with, coal, gas or oil the steam so produced rotates turbines which in turn run electric generators to produce electricity. Such power stations are working at Sukkur, Jamshoro, Mazufar Garh and Quetta.

Q.10 How can nuclear energy be obtained from uranium?

Ans: Nuclear energy comes from atoms of substance like uranium, through a special process called fission. Nuclei of uranium atoms are split up. During this process a large amount of energy is released. This energy is in the form of heat, which converts water into steam and the steam rotates the turbine which run electric generators to produce electricity.

Q.11 Define conductors and insulators and give some examples?

Ans: **Conduction:**

Electricity flows through metals like copper, silver, gold and iron. These substances are called conductors of electricity or simply conductors.

Insulators:

Electricity does not flow through substances like wood, plastic and rubber. These substances are called insulators.

Q.12 What are lightning and lightning conductors?

Ans: You may have observed that during cloudy weather, extremely bright flashes light shine across the sky. These flashes are called lightning. Lightning conductors is a kind of device which is used to save building from being damaged by lightning.

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Q.13 What happens when lightning falls on a building?

(1) If there is no lightning conductor.

(2) If there is a lightning conductor.

Ans: (1) When lightning falls on a building and if there is no lightning conductor, then there is no damage of for the building.

(2) If there is a lightning conductor then there, it may damage the building.

(B) FILL IN THE BLANKS WITH CORRECT WORDS.

1: Electron flow in a wire in current electricity.

2: The container of dry cell is made zinc.

3: The path of flow of electron is known as electric circuit.

4: Solar cell is used to convert solar energy into electricity.

5: Chemical energy of the cell is converted into electricity.

6: Turbines turn water to produce electricity.

7: In fission process the nucleus of uranium atom is split up.

8: In the process of fission a large amount of nuclear energy is released.

9: KANUPP is the abbreviation of Karachi Nuclear Power Plant.

10: When the circuit is complete it is said to be a closed circuit.

11: When the circuit is incomplete it is said to be a open circuit.

12: Water is converted into steam by heating.

(C) MATCH THE COLUMN A WITH COLUMN B

COLUMN -A	COLUMN-B
Electrons flow	Is negative by charged
Electrons do not move	the sun energy
Carbon rod of dry cell	in static electricity
Zinc container	is positively charged
Solar cells convert	in current electricity