Wave International
LUCKNOW

Science and Technology-VI (Solution)

Chapter 1 : Source of Food

(A) Multiple Choice Questions :

Tick (✓) the correct answer :

1. (c) **2.** (c) **3.** (c) **4.** (c) **5.** (c) **6.** (a) **7.** (c)

(B) Fill in the blanks with suitable words :

1. energy **2.**dead **3.** leaves **4.** Passein **5.** Cereals **6.** Boiling

(C) Say wheather the following statements are True or False :

1. False **2.** True **3.** False **4.** True **5.** True **6.** False

(D) Match the plants with the part we eat :

1. Maize **2.** Root Crop **3.** Man **4.** Goat **5.** Seals

(E) Answer the following questions in very short :

1. Food is necessary for life because food provides us energy to do work, helps our body to grow and keep healthy.

2. Lion and tiger are the two carnivorous animals.

3. Plants and animals are the main sources of food.

4. Cows and goats are two example of herbivoroes animals.

5. Sugarcane, betroot, radish, carrot, and turnip are stems that we eat as food.

(F) Answer the following questions in short :

1. Food is necessary for our life. All living beings need fuel in the form of food to sustain life.It provides us energy to do work, helps our body to grow and keep healthy. Living things cannot survive for long time without food. Food is not only necessary for human but also for plants and animals. Anything that people eat can be called as food. Cereal crops gives us more food than any other sources. Cereals are the most important sources of food. Wheat, rice, maize, jowar and bajra are called cereals. These are the seeds of cultivated grasses. Being a rice source of carbohydrates, cereals form the staple food for human being.

2. The term 'Poltry' means birds, like chicken (hen), ducks, geese, swan, pigeons, quail and turkeys. Poultry includes the domesticated birds kept by humans for the production of eggs, meat, feathers, or sometimes as pets.

3. The Three ways of avoiding wareage of food are :

(a) Food must be prepared only in required quantity.

(b) It must be stored in closed container to protect it dorm germs, flies and insects.

(c) Heating of food prevents it from spoiling.

4. Basal metabolic rate is the amount of energy expended while at rest in a neutrally temperal environment in the post absorptive state.

5. Spices provides flavour to our food. Different parts of plants are used as spices. Ginger (adrak), thyme(ajwain), cumin (jeera), coriander (dhaniya), fenugreek (methi) are most popular and commonly used spices.

(G) Answer the following questions in long :

1. Green leaves of the plants are called food producers. They are the ultimate producers of all food including the human being and animal products because all the animals eat parts of plant to nourish their life functions. Green leaves produces glucose from carbon di-oxide (of the air) and water (from the earth with the help of roots) in the presence of sunlight.Glucose is a simple sugar which changes into complex into such as : sucrose, starch and cellulose. Most plants produce flowers which turn into seeds and the seeds also became the food for the human being and animals.

2. Food is the basic need of all living organism. Food quality maintenance is a great task every day. The food is dehydeared very easily so the preservation of food quality should be necessary. Food is valuable and its quality maintenance is very imporatant. The food maintence or preserved in many ways like freezing, boiling, storage, dehydration, handling and cooking.

3. All living organism, animals also require food. Unlike plants they cannot prepare their own food. They are called consumers, as they depend on plants or other animals for their food. Based on the kind of food animals eat, they can be classified as follows.

Herbivores : Animals that eat only plants and plant products are called herbivores or herbivorous animals. Cows, goats, rabbits, sheep and deer etc. are the herbivorous animals.

Carnivores : Animals that eat only flesh of other animals are called carnivorous animals. Lions, tigers, wolves, vultures etc. are the carnivorous animals.

Omnivores : Omnivores are animals that eat both plants and animals. Human and animals like badgers, crow, cockroaches, bears and rates are omnivores.

Scavengers: Scavengers are the creatures that eat dead animals or animals waste such as drug. These types of animals are helpful in cleaning the forest and also help in cleaning our environment. These animals are the vulture, hyena and wolf.

Decomposers : These living organisms feed on dead and decaying pants and animals like fungi and bacteria. Both scavengers and decompser play very important role in nature by removing decaying organisms.

Parasites : These are very small animals that mainly depend on the living animals for food like mosquitoes, lice, hookworms and leeches. A mosquito sucks the bloods of other animals with the help of a long tube-like structure.

4. Food is very essential for our life. All living beings need fuel in the form of food to sustain life. It provides us energy to do work, helps our body to grow and keep healthy. Living things cannot survive for long time without food. Food is not only necessary for human but also for plants and animals. Anything that people eat can be called as food. Cereals are the most important sources of food. Wheat, rice, maize, jower and bajra are called cereals. These are the seeds of cultivated grasses. Being a rice source of carbohydrates, cereals form the staple food for human being.

5. Cooking is a process in which pre-cooking preparations and cooking includes. Many food materials like rice and pulses lose about 40% of their vitamins and minerals if they are over-washed. Likewise, Peeled or cut vegetables and fruits lose vitamins B and C if they are washed vigorously. Overcooking of vegetables destroys their nutritive elements.

(H) Paste two -two picture of cereal crops, root crops, stems crops and leaves.

Ans. Do yourself.

(A) Multiple Choice Questions :

Tick (✓) the correct answer :

1. (b) **2.** (a) **3.** (b) **4.** (a) **5.** (b) **6.** (c)

(B) Fill in the blanks with suitable words :

1. energy **2**. protein **3.** proteins, minerals **4**. animal **5.** iron **6.** fats

(C) State the following statements are True or False :

1. True **2.** False **3.**True **4.**False **5.** False **6.**True

(D) Match the plants with the part we eat :

1. Vitamin C **2.** Vitamin D **3.** iodine **4.** Spontaneous bleeding

5. Vitamin B **6.** Iron

(E) Answer the following questions in very short :

1. A diet that contains all the nutrients, waters and roughage in proper proportion is called a balanced diet.

2. Nutrients are the substances that an organism needs for growth, repair and maintenance of its body.

3. Vitamins are the complex organic compounds found in some foods which are necessary for the well-being of the entire body.

4. Roughage is the process that can absorb a great amount of water and helps to retain water in the body.

5. Vitamin D is called the sunshine vitamin.

(F) Answer the following question in short :

1. Water is most important for human body, animals and plants. It forms about 70% of human body weight. It is impossible for living things to survive without water; about 70% percent of the human body is made up of water. Water carries nutrients, hormones, disease-fighting blood cells and waste products to and from your organs through the blood stream. Water also helps your body to stay at the right temperature of 37°C or 98°F.

2.

S.No.	Iron	Iodine
1.	Iron's commonly found in green leafy vegetables, jaggery, eggyolk, spinach and groundnut.	Iodine is commonly found in saltwater, seafood, iodized common salt and green leafy vegetables.
2.	Iron is required for the formation of hemoglobin that helps red blood cells to carry oxygen to body cells.	Iodine is required for making bones and teeth hard and strong.

3. The calcium is present in our body almost 99 percent. It is used building bones and teeth. If the calcium is not present in hunmansbody, then the bones going to break very easily and also we cannot able to chew our food by teeth.

4. Green leafy vegetables, carrots, milk, eggs, butter, papaya, fish-liver oils are the six main source vitamin A.

5. Fats and oils are also energy-giving foods. They supply the body with energy as like carbohydrates. They act as fuels in our body. Fats also insulate body against loss of heat. A little amount of fat is essential for our body as it helps in the absorption of some vitamins and also act as protective cover for many body organs. Though fats give much more energy than carbohydrates, it is more difficult for the body to digest fats. Excess fats are often stored as body fats. The fat stored in the body causes obesity (fatness). Oils such as groundnut, sunflower, coconut, mustard and olive are obtained from plants and ghee, butter, meat are obtained from animals.

(G) Answer the following question in long :

1. Vitamins are the complex organic compound found in some foods which are necessary for the well-being of the entire body. Vitamins are necessary for normal growth, good health, good vision, proper digestion, healthy teeth, gums, and bones, and for life to be maintained. Vitamins are sometimes called micro nutrients. The main vitamins are A, B, C, D, E and K. Vitamins A, D E and K are fat soluble vitamins and vitamins B and C are the water soluble vitamins. The soueces of vitamin are :
Vitamin A - Green leafy vegetable, carrot Vitamin B_1 - Sea food, milk etc.Vitamin B_2-Yeast, eggs, Vitamin D - Sunlight, eggs, Vitamin E- eggs, yolk, milk etc. Vitamin K-cauliflower, spinach, cabbage etc.

2. Minerals are the important protective foods to carry out various functions of our body. They are required in very less quantity. Salts of calcium and phosphorus are required for making bones and teeth hard and strong. Iron is required for the formation of haemoglobin that helps red blood cells to carry oxygen to body cells. Minerals are important to carry out various functions of our body. There are 16 essential minerals, Among these, important are sodium, calcium, phosphorus, iron and iodine. They are required in small quantities.

3. The disease caused by deficiency of vitamin are—
Beri-Beri : Beri-Beri is also known as Thiamin. It is caused by the deficiency of vitamin B1. Loss of weight, weak, muscles, headache and dizziness are some important symptoms of Beri-Beri. Beans, meat, eggs and corn helps in curing this disease.
Scurvy : A disease caused by the deficiency of vitamin C. Vitamin C is also known as Ascorbic Acid. Bleeding and Swelling, loosening teeth, weakness, pain in the joints and muscles are some symptoms of scurvy. orange, tomato, lemon, guvava and amla are rich in vitamin C. Consuming the above fruits helps us to avoid scurvy.
The disease caused by deficiency of mineral are—
Anaemia : Anaemia is a major nutritional disorder affecting the health of the people in the country. When haemoglobin level falls below normal level in blood then the Anaemia causes to person. It usually result due to deficiency of iron in the diet, sometimes it also occurs due to deficiency of folic acid or vitamin. The symptoms of anaemia are fatigue, Breadlessness on exertion, sleeplessness and loss of appetite. Sometimes, the nails of the fingers and toes become brittle and spoon shaped. Anaemia can be treated and prevented by regular consumption of foods rich in iron, such as green leafy vegetables.

4. The major components are present in food are carbohydrate, fats, proteins vitamins, minerals. These are called the nutrients. Nutrients are the substances that an organisms needs for growth, repair, and mainrenece of its body.

Proteins : Foods rich in proteins are called body-building foods. These are essential for growth and repair of body parts. For example: Human blood, brain and muscles are made partly of proteins. There is protein even in the enamel of human teeth.

Sources of Proteins : Proteins which are obtained from plants are called plant proteins. Pulses, soyabean, gram are examples of plant proteins and proteins which are obtained from animals are called animal proteins. Meat, fish, egg and milk are some examples of animal proteins.

Chapter 3 : Separation of Substance

(A) Multiple Choice Question (MCQ) :

Tick (✓) the correct answer :

1. (b) **2.** (b) **3.** (b) **4.** (c) **5.** (c)

(B) Fill in the blanks with suitable words :

1. winnowing **2.** evaporation **3.** soluble **4.** sedimentation **5.** solubility

(C) State the following statements are True or False :

1. False **2.** False **3.** False **4.** False **5.** True

(D) Match the following :

1. Changing of a solid into vapours **2.** Cooling a salt saturated solution

3. Changing of a liquid into vapours **4.** Fractional distillation **5.** Decantation

(E) Answer the following question in very short :

1. The clear layer of the liquid removed without disturbing the settled solid is called decantation.

2. A mixture in which component particles do not mix completely is called heterogeneous mixture. Mixing of soil in water is the example of heterogeneous mixture.

3. Iron, nickel and cobalt are the three magnetic substance.

4. Handpicking method can be used to separate solids which are easily visible by the naked eye like stones in pulse or rice etc.

5. A material that is composed of only one type of particles is called pure substance.

(F) Answer the following question in short :

1. Distillation is a process of obtaining both the dissolved soluble substances and the liquid in which it is dissolved. In this method the mixture is heated in a flask. The solid component is left behind in the flask and the liquid is collected in another beaker with the help of a condenser.

2.

S.No	Evaporation	Distillation
1.	It is the process of converting water into water vapour.	Distillation is a process of obtaining both the dissolved soluble substances and the liquid in which it is dissolved.
2.	The process of evaporation is used to recover a solid component that has dissolved in water or some other liquid. The dissolved solid is left behind as residue when the liquid evaporated in it.	In this method the mixture is heated in a flask. The solid componenet is left behind in the flask and the liquid is collected in another beaker with the help of a condenser.

3. A mixture in which various contituents are mixed uniformly is called homogeneous mixture. Homogeneous mixture is also an impure substance. It cannot be seen by naked eye. For example, Air is the mixture of many gases like oxygen, nitrogen, carbon di-oxide etc.
4. The method of seprate lighter husk from the heaviour seeds of grain is called winnowing. It is used to separate heavier and lighter components of a mixture by wind. To seperate the chaff and grains, the threshed mixture is allowed to fall from a height along a natural breeze. This method is mainly used by the farmers.
5. Take some water in a china dish, Dissolve a spoon of common salt in it and stir it well. Place the china dish on a tripod stand with a burner placed below it. Boil the water till it evaporated, leaving behind the comon salt.

(G) Answer the following question in long :

1. We obtain clear water from a muddy water by the process of filtration. At time when we have water mixed with mud. Now took a mud water in a beaker. Take a circular piece of filter paper and fold it twice and open it out to make a cone. Place the filter paper cone in a funnel. Now clamp the funnel containing the filter paper on iron stand and keep an empty beaker below the funnel. Pour the muddy water slowly into the cone, using glass rod. The clear water passes through the filter paper and collect in the beaker kept below the funnel. The clear liquid obtained is called filtrate. Take out the filter paper cone and open it out. Mud particles can be seen on the filter paper. This is called residue. To filter water on large scale, other porous materials are used. Some of them are charcol, cotton, glass, wool and unglazed porcelain.
2. The process of separation of lighter components of a mixture from its heavier components by rotating at a very high speed is called centrifugation. It is very common method to separate butter from curd. As butter particles are not as dense as curd, they come out on top on rotation and due to this the butter comes on the upper most surface of the curd and then we can easilytook that butter.
3. The crystallization is a process of separation and purification method which involves the participating of solid crystal from its saturated solution on cooling. A crystal is solid structure with flat sides. Many substances form crystal. It is a method of producing the crystals of a substance by cooling its hot saturated solution. A saturated solution is one that contains the maximum possible amount of a solute dissolved in it. The liquid left after crystallization is a dilute solution of the substance. It is used to obtain a substance in the pure form. We can prepare crystals of common salt, sugar, alum, copper sulphate and Neela thotha by this method. Crystallization produces beautiful crystals.
4.

S.No.	Magnetic Separation	Sublimation
1.	The method of separating constituents of a mixture using a magnet is called magnetic separation. Iron, nickel and cobalt are magnetic substances.	Sublimation is a process in which solid is directly converted into gaseous form without melting.

2.	Magnetic substances are separated from the non megnetic substances by using a magnet. Thus iron filling can be separated from sand by using a magnet. The iron filling sticks to the magnet while sand does not.	The solid compound which sublimes on heating forms a non-volatile solid. When we cooled down pure solid it gets converted into gaseous form.

5. Separation means to remove one thing from the other,. It usually involves the removal of an unwanted component of a mixture. We have to separate the constituents of mixture for different reasons, some of which are as follows :

(i) To remove undesirable components : Different mixture have different components. Some of the components may be useful to us, such as tea is made by boiling tea leaves in water and adding sugar and milk. After the tea has been made, used tea leaves are an underasible components of the mixture. We separate it by using a filter called tea strainer.

(ii) To remove harmful components : When we buy wheat, pulses, rice directly from the markets, these food grains usually contain small piece of stone and insects. These are very harmful and dangerous to our body. So, we separate them from wheat, pulses and rice before cooking.

(iii) To get pure substance : The pure form of a substance is obtained when the minutest impurity is removed from it. Pure substance like distilled water are used for laboratory experiments and research.

(iv) To recover useful substance : Separation is also used to obtain useful components from a mixture like petrol and diesel are separated out from petroleum which is complex mixture of hydrocarbons and many organic compounds.

(H) Define these terms :

(i) Sediments : The heavier insoluble particles that settle down at the bottom of the liquid are called sediments.

(ii) Filtration : The method of filtration is used to the insoluble solids. These can be removed from a liquid by using a filter. The undissolved solid particles left are called residue.

(iii) Sieving : Sieving is used to separate substance that are of different sizes. In this method a sieve is used. The smaller components of the mixture can pass through the pores of the sieves, the bigger components of the mixture are retained by the sieve.

(I) Project Work

Do yourself.

(J) Project

Do yourself

Chapter : 4 Fibre to Fabric

(A) Multiple Choice Question (MCQ) :

Tick (✓) the correct answer :

1. (a) **2.** (c) **3.** (a) **4.** (b) **5.** (c)

(B) Fill in the blanks with suitable words :

1. easy **2.** sheep **3.** covered **4.** natural **5.** cocoons

(C) State the following statements are True or False :

1. False **2.** False **3.** False **4.** True **5.** False

(D) Match the following :

1. Sheep **2.** Flax plant **3.** Silk worm **4.** Synthetic fibre **5.** Natural fibre

(E) Answer the following question in very short :

1. In India cotton is grow in Maharashtra, Gujarat, Tamil Nadu, Andhra Pradesh, Madhya Pradesh, Punjab and Rajasthan.

2. Jute plant and Flax plant are two plant fibres where jute is obtained.

3. Clothes protect our body from extreme weather conditions, like heat, cold and rain etc. They protect us from harmful insects, bacteria, dirt and injury.

4. The modern man uses cotton, wool, silk and synthetic yarns for clothing.

5. Synthetic fibre is mainly of two types– nylon and rayon.

(F) Answer the following question in short :

1. Flax fibres are obtained from the stem of flax plant. It has a crisp feel, is fairly strong and has a shiny appearance. It is widely used to make table cloths, napkins and dress materials. They are also used in making ropes and high quality paper.

2. Early man did not wear clothes because they have not woolen and cotton clothes so they covered his body with the bark of trees, large leaves and animal skin to keep himself warm. They don't have any

3.

S.No.	Cotton	Wool
1.	Cotton is obtained from cotton plant.	Wool is obtained from the hair of sheep and some other animals, like camel and yak.
2.	Cotton is used to make cotton clothes.	Wool is used to make winter clothing because wool clothing is warm.
3.	Cotton is grown in abundance in countries like Mexico, China, Brazil, Egypt and India.	The quality of wool differ from breed of sheep lambs wool and Marino.

4. We get silk from cocoons by silk worms. The rearing of this insect is called sericulture. Once they have had their fill silk worms skin silk threads and form a sheath like structure around the bodies. This structure is called the cocoon. Silk worms change into pupa inside the cocoons. These cocoons are boiled to kill pupa and get silk fibre. Most high quality cultivated silk is obtained from the caterpillars (or larvae) of a moth called Bombyx more which feeds on the leaves of mulberry trees.

5. The difference between Nylon and Rayon :

Nylon : Nylon has been a leading synthetic fibre since the 1940, when nylon stoking first appeared in the market. Nylon is strong, resists wear and rotting, needs no ironing and drip dries. It is widely used in shirts, socks and all kinds of clothing, either by itself or mixed with other fibres. Nylon rope is widely used because it is extremely strong.

Rayon : Rayon is a silky, lustrous fibre made from cellulose from pulp of softwood. The most common kinds of rayon are viscose and triacetate. It is spun into yarn for use in all kinds of clothing.

(G) Answer the following question in long :

1. Clothes are one of our basic needs. We all wear different kinds of clothes. Clothes protect our body from extreme weather conditions, like heat, cold and rain etc. They protect us from harmful insects, bacteria, dirt and injury. People of different cultures wear different kinds of clothes. In summer we usually wear clothes made of cotton. In winter we wear woollen clothes. People's belong to different religion, culture and nationality wear different type of clothes.

2. Early man did not wear clothes, he covered his body with the bark of trees, large leaves and animal skin to keep himself warm. With the advancement in civilization, silk and synthetic yarns also come in use. As yeae passes the development takes places. Different types of fabrics are made from different materials. Most of the fibres are made up of long, strong, thread like material which is called yarn. Yarn is made up of thinner strands called fibres. Fabric is prepared from fibres. Fibres are of two types, namely natural fibres and synthetic or man made fibres.

3. Synthetic fibre is also known as man made fibre. The synthetic fibres are made from chemicals. The synthetic fibres are made from a kind of plastic. Synthetic fibre is strong, resists wear and rotting are. synthetic fibre is mainly of two types – nylon and rayon.

Nylon : Nylon has been a leading synthetic fibre since the 1940, when nylon stoking first appeared in the market. Nylon is strong, resists wear and rotting, needs no ironing and drip dries. It is widely used in shirts, socks and all kinds of clothing, either by itself or mixed with other fibres. Nylon rope is widely used because it is extremely strong.

Rayon : Rayon is a silky, lustrous fibre made from cellulose from pulp of softwood. The most common kinds of rayon are viscose and triacetate. It is spun into yarn for use in all kinds of clothing.

4. Wool is a fibre and it is obtained from the hair of sheep and some other animals, like camel and yak. Clothing made from wool is warm and light, and it is comfortable to wear. Wool is more useful, than any other animals hair because it keeps its shape. The best wool has fine, strong and long fibres and is pure white in colour. Wool is used to make winter clothing because wool clothing is warm. The quality of wool differ from breed to breed of sheep. Lambswool and Marino have the fine and soft wool, Crossbred have medium wool for mixing and domestic fabrics and Upland and Mountain types coarse and for carpets.

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(A) Multiple Choice Question (MCQ) :

Tick (✓) the correct answer :

1. (b) **2.** (c) **3.** (a) **4.** (a) **5.** (b)

(B) Fill in the blanks with suitable words :

1. Soluble **2.** Insoluble **3.** Opaque, opaque **4.** Lustrous **5.** Gold

(C) State the following statements are True or False :

1. True **2.** True **3.** True **4.** False **5.** False

(D) Match the following :

1. Transparent **2.** Solid **3.** Gas **4.** Liquid **5.** Opaque

(E) Answer the following question in very short :

1. Metal, silver are two good conductorof heat and Wood,plastic are bad conductor of heat.

2. Lustre is the shining property of metals.

3. No, Chalk do not dissolve in water. I am not agree because chalk is made up of insoluble things in water.

4. Materials that allow us to see clearly through them are called transparent.

5. Substance that transmit lihgt but no detail of that light are sid to be translucent.

(F) Answer the following question in short :

1. Density of an object decides whether it sinks in or floats on liquid. The measurement of the amount of mass in a given volume of an object is called its density. All heavy materials sink in water and light materials, float on water. Object that Sink : All heavy metals, lead, mercury, steel, granite and iron etc. Object that Float : All light metals, wood, wax, ice, paper and plastic etc.

2. Water is a universal solvent as many things dissolve in it. Some substances dissolve or mix completely in water. In a solution the substance that is dissolved is called the solute and the substance in which the solute get dissolved is called the solvent For example : In a glass of lemonade lemon juice and the sugar are solutes and the water is the solvent.

3. The five things are made up of wood and iron door, table, chair, window and bed.

4. Insulator are those materials which donot allow electricity to flow freely. The example of the insulator are rubber, glass, wood, plastic, and air.

5. Difference between solid and gases :

S.No	Solid	Gas
1.	A little free space between particles.	A lots of free space between particles.
2.	In solid, particles cannot move or slide fast one another	In gas ,particles can move fast one another.
3.	Sugar and common salt are the example of solids.	Oxygen and carbon dioxide are the example of gas.

(G) Answer the following question in long :

1. Matter is everything around us. Atoms and molecules are all composed of matter. Matter is anything that physically takes up space and has mass. Matter can be found

all over the Universe.Matter is made up of small particles. The particles of the matter are very small. We cannot see them even with a high power microscope. Matter is anything that has mass and takes up space . So in order to prove that air has mass and takes up space , so let's so thta part of the problem first . Blowing a balloon shows that it has mass and it also occupies a space.

2. Materials that allow us to see clearly through them are called transparent. Glass, water and air are some example of transparent object but some materials that do not allow us to see through them ans are called opaque. Cardboard, wood, stone, note book etc. are some example of opaque objects. If you see through a piece of waxed paper, you can see light. But the object you see is unclear and lacks details. Substances that transmit light but no detail of that light are said to be translucent. Things can be grouped as transparent, opaque and translucent. Example of objects belonging to them are as under:

Transparent : Water, glass and air.

Translucent : Waxed paper, muddy water, fog and mist.

Opaque : Wood, stone, cardboard, and some other metals.

3.

S.No.	Conductor	Insulators
1.	Materials that permit electricity to move easily are called conductors.	Materials that do not allow electricity to flow freely are called insulators.
2.	Mostly metals are conductors of electricity. Silver, copper, aluminium and mercury are among the best conductors, water is good conductor of electricity.	Insulators include rubber, glass, woods, plastic and air etc.

(**H**) Do yourself.

Chapter 6 : Changes Around Us

(A) Multiple Choice Question (MCQ) :

Tick (✓) the correct answer :

1. (a) **2.** (b) **3.** (b) **4.** (b) **5.** (c)

(B) Fill in the blanks with suitable words :

1. slow **2.** Chemical **3.** temporary changes **4.** chemical

5. reversible, irreversible

(C) State the following statements are True or False :

1. False **2.** False **3.** True **4.** True **5.** True

(**D**) **Match the following :**

1. Can be compressed easily **2.** Irreversible change **3.** Physical change **4.** Chemical **5.** Slow change

(**E**) **Answer the following question in very short :**

1. The change in which a substance changes its state giving rise to a new substance that is entirely different from the original one is called the chemical change.

2. Evaporation of petrol are the example of fast change.

3. Do yourself

4. Slow changes are those changes which takes place very slowly.Growing of child is the example of slow changes.
5. There are certain changes which take place naturally or are made by us because they are useful to us. Such changes are called desirable changes. Making of curd from milk is the example of desirable changes.

(F) Answer the following question in short :

1. The three example of desirable changes are making of curd from milk, formation of manure from plant ,animal wastes and the three example of undesirable change cooking food. Spoiling food, flooding of river.
2.

S.No.	Physical Change	Chemical Change
1.	No new substance is formed.	New substance is formed.
2.	No change in composition.	Change in composition.
3.	It is easily reversible.	It is irreversible.
4.	It is a temporary change.	It is a permanent change.
5.	It can be reversed in many cases by simple physical methods.	It can not be reversed by simple physical methods.

3. Pulling of a rubber string is reversible change because, change which can be reversed on removing or changing the cause of change is called reversible change. A reversible change does not create a new material.
4. In everychange that occures around us energy is involved. A change cannot take place without the involvement of energy. For example : Drying clothes, flowering of plants, heart beat etc.
5. **The difference between periodic and non-periodic :**

S.No.	Periodic	Non-Periodic
1.	Periodic changes are those changes which occur again and again after a fixed interval of time and whose occurrence can be predicted.	Non-periodic changes are those changes which do not repeat themselves at regular intervals of time.
2.	For example :The new moon or the full moon appears fixed duration of days. The sun rises and sets after a fixed duration of time. All such changes which keep repeating themselves on a regular period of time are called periodic changes.	For example The occurrence of landslides, earthquakes, train, accidents, sneezing and cyclone etc. We can not predict when the non-periodic changes will going to occur.

(G) Answer the following question in long :

1. A saturated solution is a solution that contains the maximum amount of dissolved material possible. Any additional material added to the solution will not be dissolved into the solution. The solution goes on the satured solution whrn there is no possibility of adding solvent in it. There are various day to day examples of saturated

solution are coffe powder addded to water can create a saturated solution, Sugar can be added to milk to the point of saturation.

2. When the matter changes from its state without forming a new substance is called physical change. It is a temporary change in which no new substance is formed. It is reversible and the composition of the substance does not change. Some examples of physical changes are :

1. Magnetizing an iron nail is a physical change.
2. Breaking of a chalk or glass tumbler is a physical change as no new substance is formed.

Physical changes can be reversible and irreversible changing of solid water to liquid water is reversible change but the breaking of glass beaker into pieces is a physical but irreversible change.

3. **Periodic Changes** are those changes which occur again and again after a fixed interval of time and whose occurrence can be predicted. In periodic changes repeated its self after every fixed interval of time. **For example :** The new moon or the full moon appears after a fixed duration of days. The sun rises and sets after a fixed duration of time of days. All such changes which keep repeating themselves on a regular period of time are called periodic changes.

Chapter 7 : Living and Non-living Things

(A) Multiple Choice Question (MCQ) :

Tick (✓) the correct answer :

1. (c) **2.** (c) **3.** (c) **4.** (a) **5.** (b)

(B) Fill in the blanks with suitable words :

1. faster **2.** plant **3.** mass **4.** trunk **5.** cells

(C) State the following statements are True or False :

1. True **2.** True **3.** True **4.** False **5.** True

(D) Match the following :

1. Kilograms **2.** Cubic centimetre **3.** Plants **4.** Non-living thing **5**. Humans

(E) Answer the following question in very short :

1. The weight of an object is the force of gravity on the object and may be defined as the mass. Mass is the amount of matter in an object.

2. Weight is common property of matter. Mass is the reason that an object has weight.

3. The amount of space which an object occupies is called its volume.

4. An object's mass per unit volume is called its density.

5. Animal are heterotrophic they can not prepare their own food. They depend on plants or other animals for food.

(F) Answer the following question in short :

1.

S.No.	Volume	Weight
1.	The amount of space which an object occupies is called its volume.	All living things, non-living things, objects such as book, pen, table have weight.

2.	The unit used to express volume are known as litre, millilitre, cubic centimeters.	The unit used to express weight are known as kilogram, gram, milligram etc.

2. The difference between Living and Non living things :

S.No	Living things	Non-living Things
1.	Living things grow and develop.	Non-living things do not grow and develop.
2.	Living things are made up of cells.	Non-living things are made up of molecules.
3.	Living things can repair themselves and maintain their organization	Non-living things can not repair themselves and not maintain their organization.
4.	Living Things can reproduce.	Non living thing cannot reproduce.

3. Each habitat has some characteristic features. The presence of specific feature or habits which enable an organism to survive in its surrounding is called adaptation. Adaptation is a process in which a living organism learns to survive and reproduce in its environment. Adaptations take long time to develop.

4. The five common features of living things

(i) Metabolism: The sum total of various life processes taking place within the body of an organisms is called metabolism. It includes nutrition, growth and development, lifespan and breathing.

(ii) Movement : All living things and moving animals must be able to move in order to find food and shelter. For example, salmon swims hundreds of kilometres in search of a place to mate.

(iii) Reproduction : All living things reproduce some living organisms by eggs, such as birds, snakes while some living organisms like humans give birth to young ones.

(iv) Responsiveness : Scientists call each of the signals to which an organism reacts a stimulus. A stimulus is any change in the environment or surroundings of an organisms that produce a response,. A response is some action or movement of the organism.

(v) Cellular structure : All living things are made up of tiny units called cells. Cells is the smallest unit of structure and function. It is called the basic unit of life.

5. Chloropalsts are large, irregularly shaped structures floating in the cytoplasm. They are green and contain a green pigment called chlorophyll. Chlorophyll captures the energy of sunlight and uses it to make food for the plant cell. Chloroplasts are found only in plant cells.

(G) Answer the following question in long :

1. Non-living things are around us. These things share an important characteristic that they are all forms of matter. Matter is what the world is made of all non-living things such as a chair, table, book, pen, a car, a machine consist of matter. The weight of an object is the force of gravity on the object and may be defined as the mass. Mass is the amount of matter in an object. The mass of an object does not change unless some matter is either removed from the object or added to the object.

Volume : The amount of space which an object occupies is called its volume. The unit used to express volume are litre, millilitre, cubic centimetre etc.

Weight : All living things, non-living things, object such as book, pen, chair, table have weight. Weight is common property of matter. Mass is the reason that an object has weight. The pull of gravity on an object determines the object's weight.

Mass and Weight : Mass does not change when it is location changes. So no matter what happens to the force of gravity, mass stays the same, only weight changes. Anything that has mass and occupies space is matter.

Density : An object's mass per unit volume is called its density. Density is often expresses in gram per millilitre or kilogram per cubic metre.

2. The Difference between Plants and animals are :

Plants ans animals both are living things. But they have the following basic differences :

1. **Growth :** The growth of plants is localized and indefinite. plants grow faster and on more directions in their early stages. The branches and roots grow in a directions. While animals grow only up to a certain age and the growth is uniform, affecting all parts of the body. Growth in animals is dramatic. For example - A tadpole in a few weeks grows into a frog ans a caterpillar soon grows into a butterfly.
2. **Nutrition :** Plants are autotrophs they can prepare their own food. The leaves of pants contain chlorophyll and trap the sun' s energy and use it to produce food. The food is produced when the plants chemically combine water and carbon dioxide. This is known as autotrophic nutrition. While animals are heterotrophic they can not prepare their own food. They depend on pants or other animals for food.

   Locomotion : Plants are generally rooted and cannot move about freely from place to place. They only bend or swing. Only the parts of plants move while the animals can move from one place to another place. They move in many ways : fish swim, kangaroos bounce, while birds fly.

   Cell Structure : Plants cells and animals cells are different.

   (i) The rigid cell wall is found only in plant cell. It is not present in animal cell. This structure helps in giving protection and support plant.

   (ii) The plants lack organ system while animals possess special organ system.

   (iii) Chloroplasts are found only in plants cells. They help the plant to make its food.
3. **Responsiveness :** Scientists call each of the signals to which an organism reacts a stimulus. A stimulus is any change in the environment or surroundings of an organisms that produce a response,. A response is some action or movement of the organism. Stimuli may come from inside an organisms's body. A lack of oxygen in your body is a stimulus that often causes you to yawn.
4. **Cellular structure :** All living things are made up of tiny units called cells. Cells is the smallest unit of structure and function. It is called the basic unit of life. The cell itself is made up of protoplasms. It is like a blob of jelly, but comtains many minute structure. A dense control spot, called the nucleus is the most important of them. It acts as the brain of the cell. All the protoplasm outside the nucleus is called cytoplasm. Chloroplasts are large, irregularly shaped structures floating

in the cytoplasm. They are green and contain a green pigment called chlorophyll. Chlorophyll captures the energy of sunlight and uses it to make food for the plant cell, Chloroplasts are found only in plant cells.

(H) Do yourself.

(I) Do yourself.

Chapter 8 : Our Environment

(A) Multiple Choice Question (MCQ) :

Tick (✓) the correct answer :

1. (b) **2.** (b) **3.** (c) **4.** (b)

(B) Fill in the blanks with suitable words :

1. Sunlight **2.** oxygen **3.** photosynthesis **4.** Living and non-living

5. Autotrophs

(C) State the following statements are True or False :

1. False **2.** True **3.** False **4.** False **5.**False

(D) Answer the following question in very short :

1. All living and non-living things are around us called environment.

2. An Air is the mixture of many gases. Air includes oxygen, carbon dioxide, nitrogen and many gases.

3. An Environment is of two types : Biotic environment or living and Abiotic environment or non-living.

4. We should follow the three R's for a cleaner and better environment. These R's stand for Reduce, Reuse and Recycle.

5. Carrot, radish, sugarcane,turnip and potato are stems that we eat as food.

(FE) Answer the following question in short :

1. Consumers are also called heterotrophs or other feeders. There are many types of consumers. Some organisms insects, mice and rabbits are plants eaters and are called herbivores. Snakes, frogs, wolves are flesh eaters. They are called carnivores. They consume animals that are plants eaters or animals that feed on plant eaters.

2. Carbon dioxide is present in very small quantity but it is required by plants for photosynthesis. Carbon dioxide is one of the gases that keep our atmosphere warm. It is produced & released on combustion. The other gas like ozone gas in the atmosphere protects the human from the harmful ultraviolet radiations of the sun.

3. Green plant use carbon dioxide from the atmosphere, water from the soil and energy of sunlight to make their own food. This process is called photosynthesis. Photosynthesis helps in making the food for the plant

4. These living organisms feed on dead and decaying plants and animals for example fungi and bacteria decomposes play very important role in nature by removing decaying organisms.

5. Oxygen is the most important gas all other gases in the air. The body burns its food in this oxygen to provide energy and heat. Oxygen is essential for burning and combustion. there can be no fire without oxygen. The percentage of oxygen may be higher in areas where there is more greenery.

(F) Answer the following question in long :

1. The Biotic environment includes all organisms plants and animals including human beings and micro-organisms.

Green plants : plants are an integral part of our surrounding environment. They grow almost every where. They are different in sizes, shapes etc. green pants have cell walls with cellulose and obtain most of their energy from sunlight for photo synthesis by primary chloroplast. Green plants can make their own food while most other living things can not. photosynthesis is an important source of oxygen on earth organisms can be classified into three main groups :

(i) Producers : plants are autotrophs; They make their own food and thus called food producers.

(ii) Consumers : Consumers are organisms of the ecosystem which consumer other organisms. Consumers are also called heterotrophs or other feeders. There are many types of consumers. Some organisms insects, mice and rabbits are plants eaters and are called herbivores. Snakes, frogs, wolves are flesh eaters. They are called carnivores. They consume animals that are pants eaters or animals that feed on plant eaters.

(iii) Decomposers : These living organisms feed on dead and decaying plants and animals for example fungi and bacteria decomposes play very important role in nature by removing decaying organisms.

2. The abiotic environment includes two important things the medium in which an organisms lives and the medium in which an organisms lives and the medium in which surround it. the medium includes soil, water and air while climate includes light, rainfall, humidity, wind temperature etc.

Air is the mixture of many gases. Air includes oxygen, carbon dioxide, nitrogen and many gases. Living things like human and plants also need oxygen to stay alive. In the atmosphere 78% nitrogen, 21% oxygen and 2% of carbon dioxide and many other mixture of gases present in atmosphere. oxygen which dissolved from the atmosphere in the water is breathed by fish and other aquatic animals. While a human inhale oxygen and exhale the carbon dioxide by the process of breathing. oxygen is known as the life supporting gas.

3. Temperature is most imporatant for all living organisms. Plants grow well only within limited temperature range. Temperatures that are too high or too low will result in abnormal development and reduced production warm season 80°F coal season vegetable such as lettuce and spinach should be grown between 50° and 70°F. Most organisms cannot survive at such temperature extremes because many metabolic activities can not occur at these temperatures.

4. The green house effect warming is known as Global warming. Global warming refers to an average increase in the earth's temperature, which in turn causes changes in climate. A warmer earth may lead to changes in rainfall patterns, a rise in sea level, and a wide range of impacts on plants, wildlife, and humans. When scientists talk about the issue of climate change, their concern is about global warming caused by human activities. The rise in temperature of the earth result in the melting of the ice at the North Pole and South Poles. There is now less snow covering hthe mountain ranges. Many countries like Bangladesh and islands like Tuvalue are being affected by global warming. All this means that there will be less and land for a growing population to live on.

(**G**) Do yourself

(H) Do yourself

(A) Multiple Choice Question (MCQ) :

Tick (✓) the correct answer :

1. (a) **2.** (b) **3.** (c) **4.** (c) **5.** (a)

(B) Fill in the blanks with suitable words :

1. fir **2.** terrestrial **3.** hydrophic **4.** desert **5.** moist

(C) State the following statements are True or False :

1. False **2.** False **3.** True **4**.True **5.** False

(D) Match the following :

1. River **2.** Conifer **3.** Hydrophyte **4.** Land **5.** Xerophyte

(E) Answer the following question in very short :

1. The plants like cacti are adapted to grow in dry habitats are called xerophytes.

2. Mesophytes are terrestrial plants which are adapted to neither a particularly dry nor particularly wet environment.

3. Difference between lotus and cactus :

S.No.	Lotus	Cactus
1.	Lotus adapted to excessive water supply.It is known as hydrophytes.	Cactus are adapted to grow in dry habitate are called xerophytes.
2.	Lotus has fewer roots which helps to hold the plant in place.	Roots are long so that they go deep into the soil. Roots often become fleshy to conserve water.
3.	The stem is long thin or flexible.	The stem become thick and fleshy to succulent for conserving water.

4. Fish, Dolphin and whale are the aquatic animals.

5. The place where living organism (plants and animals) lives, or the place where one would go to find the particular organism is known as the habitat of that organism.

(F) Answer the following question in short :

1. Fins are usually the most distinctive feature of a fish. They are composed of bony spines or rays protruding from the body with skin covering them and joining them together, either in a webbed fashion, as seen in most bony fish or similar to a flipper as seen in sharks. Their principal function is to help the fish swim.

2. Desert habitats are very dry place, where the rainfall is scarce. Desert can be hot or cold but they are always dry. Camel is the ship of desert can be hot or cold but they are always dry. Camel is the ship of desert and has many adaptations to help live in deserts.

3. Mesophytes grow in moist habitat and well aerated soils. The great majority of plants live in average or optimum water supply. These plants are known as mesophytes. The stems of mesophytes are aerial and have many branches and root system is well developed.

4. The word 'Aerial' means pertaining to the air. Arieal habitat includes habitats of organisms that live in air or fly in the air. Birds and bats come under this category. A number of animals living on trees are referred to as arboreal. It is also known as Arboreal habitat.

5. Camel is the ship of desert has many adaptations to help live in deserts.

(i) It passes very little urine.

(ii) Camel can live without water for many days because it can drink large quantity of water at a time.

(iii) The camel feet have large soles and are suitable for walking on sand.

(iv) Camel has a hump on its back which stores fat. This provides water when needed by the body.

(G) Answer the following question in long :

1. The differences between hydrophyte and xerophytes :

S.No.	Hydrophytes	Xerophytes
1.	Hydrophytes have fewer roots which help to hold the plant in place.	Xerophytes have long root so that they go deep into the soil. Roots often become fleshy to xerophytes.
2.	The stem is long, thin or flexible. Stem has canals in it. For example- Hydrilla.	The stem becomes thick and fleshy to succulent for conversing water. It becomes green to carry out photosynthesis.
3.	Lotus has large circular leaves, water lily has large floating leaves	The stem has a waxy coating which prevents loss of water through transpiration. For example- Capparis, Cactus etc.

2. The difference between the aquatic and desert plants :

S.No.	Aquatic plants	Desert plants
1.	Aquatic plants are plants that have adapted to living in aquatic environments.	Cactus spines are produced from specialized structures called areoles.
2.	Aquatic plants require special adaptations for living submerged in water, or at the water's surface.	Cactus stems are often ribbed or fluted, which allows them to expand and contract easily for quick water absorption after rain.
3.	Aquatic plants can only grow in water or in soil that is permanently saturated with water.	The stem becomes thick and fleshy to succulent for conversing water. It becomes green to carry out photosynthesis. .
4.	Aquatic plants are able to survive in brackish, saline, and salt water.	Spines are present even in those cacti with leaves, such as Pereskia, Pereskiopsis and Maihuenia, so they clearly evolved before complete leaflessness.

(H) Group Discussion :

Do yourself

(I) Science Puzzle :

(i) ADAPTATION (ii) HABITAT (iii) AQUATIC (iv) LEAVS

(J) Project :

Do yourself

Chapter 10 : Structure and Function of Living Organisms

(A) Multiple Choice Question (MCQ) :

Tick (✓) the correct answer :

1. (c) **2.** (b) **3.** (c) **4.** (b) **5.** (a)

(B) Fill in the blanks with suitable words :

1. joint **2.** cardiac muscles **3.** grapevine **4.** medium

5. root system, shoot system **6.** cockroach

(C) State the following statements are True or False :

1. False **2.** False **3.** False **4.** False **5.** True **6.** True

(D) Match the following :

1. Shrubs **2.** Herbs **3.** Modified root **4.** Elbow **5.** Head

(E) Answer the following question in very short :

1. Joints are the place where the two bones of body meets.

2. In our body we have hinge joint in our elbow, fingers, knees and toes.

3. Only lower jaw is the movable part in the skull.

4. Mango, guava, neem, banyan and peepal are the example of trees.

5. Rose, lemon, corinda and bougainvillea are some examples of shrubs.

6. Thalamus is the upper swollen end of the pedicel. All the floral parts are atteched to the thalamus.

(F) Answer the following question in short :

1. **Gliding joints :** These types of joints allow to sliding movements of two bones over each other. The movement occurs side to side as well as in backwaed and forward The forward. Ankle joints is the example of gliding joints.

2. The muscles are attached to the bones by strong fibres called tendons. Muscles cover the skeletal frame work of the body and provide the means of all kinds of movements you can feel the muscles in your upper arm. The biceps are in the front and the triceps at the back.

3. Herbs are the plants that have soft and non-woody stem. They are generally smaller sized and their life span is short 1-2 seasons. There are some medical herbs that contain useful drugs. Mint, sage balsam, mustard are some example of herbs.

4. The main root which grows in the middle from the base of the plant is called taproot. In this system, It is grows vertically downwards in the soil. It is also called true root. Taproot is found in dicot plants like gram, pea, bean and carrot.

5. In some plants, root crops are the crops we grow for their roots or tubers. They involve many vegetables. For example : turnips, carrot, radish and beetroot. They are called modified Roots. Some roots are modified to store food. The food prepared by leaves is stored in the roots of plants.

(G) Answer the following question in long :

1. A joint is place where two bones of body are meeting. Movement of bones occurs at the joints. There are four main kinds of joints.

(i) **Pivot Joint :** This type of joint allows only rotation and allows the bones it connects to move. For example : The joint between the neck and the head.

(ii) **Ball and Socket Joint :** This joint allows maximum movement in all directions. The ball-like end of one bone fits into a cup-like cavity, or socket of the other bones. The joints at the hip and in the shoulder.

(iii) **Hinge Joint :** We have hinge joints in our elbow, fingers, knees and toes. They allow movement of the bones in one direction. That is up and down or back and forth movement.

(iv) **Gliding Joints :** These joints allow to sliding movements of two bones over each other. The movement occurs side to side as well as in backward and forward. For example : Ankle joints.

2. The first part of skeleton is the skull. Skull is the bony structure on the head. All the bones in skull are fixed. The lower jaw is the only movable bone in the skull. The second part of the skeleton is back bone. The backbone extends from the base of skull to the hips. It is also called spine. The ribs are the third part of skeleton. The chest is cone shaped cage called rib cage. The ribs are flat and curved and attached to the sides of each vertebra. Cartilage attaches ten of them to the breast bone at the front. Two ribs are free. These are called floating rains. The ribs are joined in such a way that they allow the movement of the chest during breathing. The fourth part of skeleton. There is a pair of forelimbs or arms that are joined to the spine by the shoulder girdle or pectoral girdle and the collar bone. The bone of the upper arm is called humerus and the bones of the lower arm are called radius and ulna. There is a pair of hind limbs or legs that are joined to the spine by the tip girdle or pelvic girdle. The bones of upper leg or thigh is called tibia and fibula.

3. Snakes do not have legs. The body of snakes is long and relatively slender body has more ribs and vertebrae than other back-boned animals. A snake moves by turning its body into several loops on alternate sides. Each loop of the snake gives it a forward push by pressing against the ground. Snake body make a many loops and each loop gives it a forward push, the snake moves forward very fast. They move in zigzag shape.

4. Photosynthesis is the most important function of leaves in the manufacturing of food. The green leaves contain chlorophyll and trap the sun's energy and use it to produce food. In Photosynthesis process the leaves also release oxygen. It is the loss of water in the form of water vapour from the leaves of plants through their stomata. It cools the plant body during hot summer. Stomata are mainly present In the ventral surface of the leaf. Leaves use the carbon dioxide from the air in photosynthesis and release oxygen into the atmosphere. Some leaves are modified to store food. They swell and become fleshy, such as onion leaves of some plants have even buds that produce new plants, such as begonia and bryophyllum.

(H) Collect information on the ways of movement of various animals. Classify the animals into the following groups :

Do yourself

Chapter 11 : Measurement of Motion and Distances

(A) Multiple Choice Question (MCQ) :

Tick (✓) the correct answer :

1. (b) **2.** (a) **3.** (c) **4.** (a) **5.** (a)

(B) Fill in the blanks with suitable words :

1. 10 **2.** kilogram **3.** length **4.** 9,460,000,000,000,000, **5.** second

(C) State the following statements are True or False :

1. True **2.** False **3.** True **4.** True **5.** False

(D) Match the following :

1. 1000 gm **2.** 60 min **3.** 1 metre **4.** length

(E) Answer the following question in very short :

1. Motion is a change in position of an object over time.

2. Circular motion is the movement of the body along a circular path. Motion of the moon around the earth is the example of circular motion.

3. The motion that does not repeat itself at regular intervals is called non-periodic motion.

4. Velocity is a physical vector quantity. The velocity of an object is the rate of change of its position with respect to a frame of reference, and is a function of time.

5. A force is a push or pull exerted on an object that may give energy to the object nd cause it to start moving or stop moving, or change its motion.

(F) Answer the following question in short :

1. The difference between rotatory motion and vibratory motion :

Rotatory motion : A body is said to be in rotatory motion if it moves about a fixed axis without changing the position. Motion of blades of a fan is the example of rotatory motion.

Vibratory motion : An object is to be in vibratory motion if it moves to and fro about its position of rest. It is very fast to and fro motion. For example : When an empty metal vessel is struck by a spoon, a sound is heard for some time.

2. Length is the distance between any two points or places, width or breadth, depth, thickness, distance and height are all the measurement of length. It can be measured using a ruler, a measuring tape, a metre rod, and so on, which is convenient for the required purpose.

Standard units are the units we usually use to measure the weight, length or capacity of objects. A standard unit of measurement is essential because it does not vary from person to person and these are clearly understood by everyone.

3. Uniform motion: Uniform motion is a state of a moving body when a body travels equal distances in equal intervals of time. For example : If a body covers a distance of 10 m every second then it is said to have a uniform speed of 8m/s.

Non- Uniform motion :A body is said to have a non- uniform motion if it travels unequal distances in equal intervals of time. For example : When a boy riding a cycle, covers a short distance per unit time in beginning, gradually gains speed and covers more distance in the same time unit.

4. Metre is used as a standard unit for measuring length. Length can be measured by using a ruler, a measuring tape, a metre rod, and so on, which is convenient for the required purpose. Metre can be used as unit to measure the length of square wood. It is also suitable to measure the length of a park. But the length of a pen or note book is much less than a metre. So we express it in a smaller unit of centimetre.

Relationship between different units of length :

1 metre = 100 centimetres (cm), 1 kilometre (km) = 1000 meters (m)

1 decimetre = 10 centimetres (cm) ,1 centimetre = 10 millimetres (mm)

5. Rectilinear motion is another name for straight-line motion. This type of motion describes the movement of a particle or a body. A body is said to experience rectilinear motion if any two particles of the body travel the same distance along two parallel straight lines. When an object moves along a straight line, its motion is called Rectilinear motion. For example : Motion of a cyclist and the motion of striker on the carom board.

(G) Answer the following question in long :

1. The precaution in measuring the length of an object using rular of these are as follows :

Step 1. Place the scale and the object in contact along the length to be measured, so that the scale is also parallel to one of the edges.

Step 2. While noting down the reading, the eye should be correctly positioned, just vertically above the reading of the scale to be noted.

Step 3. If one of the edges of the scale is broken or the zero-mark is invisible due to overuse, then any other full-mark which is clearly visible, can be used a s shown in figure. If you start your scale at one end of the object to be measured, with the full mark 2.0 cm, then '2' is to be subtracted from the reading of the scale at the other end so as to obtain the correct length of the object. Suppose the scale reads 2.0 cm at one end and 4.1 cm at the other end of the object. Therefore, the length of the object is 4.1 cm – 2.0 cm = 2.1 cm.

2. Many quantities occurring in physics can be expressed in units of 'Length', 'Mass' and 'Time'. The units of these three quantities are independent of one another. No one can be changed or related to the other unit. These quantities are called fundamental quantities and their units are called fundamental units. Units of other quantities, e.g. square metre for area and metre per second for speed are called derived units. These units are derived from one or more fundamental units.

(H) Science Puzzle

Rearrange the following words into meaning full words :

1. Mass **2.** Motion **3.** Kilogram **4.** Metre

Chapter 12 : Light Shadows and Reflection

(A) Multiple Choice Question (MCQ) :

Tick (✓) the correct answer :

1. (a) **2.** (a) **3.** (b) **4.** (a) **5.** (a) **6.** (b)

(B) Fill in the blanks with suitable words :

1. Translucent **2.** straight **3.** Sun **4.** lateral **5.** virtual.

(C) State the following statements are True or False :

1. True **2.** False **3.** False **4.** True **5.** True

(D) Match the following :

1. Luminous **2.** Translucent **3.** Non-luminous **4.** Opaque

5. Transparent **6.** Reflecting surface

(E) Answer the following question in very short :

1. Reflected ray is the ray of light which is sent back (bounced back) by the mirror.

2. A shadow is the darkness that an object causes when it prevents light from falling on opaque object.

3. There are two types of sources of light are Natural resources and Man made sources.

4. When light falls on the surface of an object, the object sends the light back. The process of sending back the light rays that fall on the surface of an object is called refection of light.

5. Candle, tube light, bulb, led torch etc. are the example of manmade sources of light.

(F) Answer the following question in short :

1. The difference between images and shadows :

S.No.	Images	Shadows
1.	Images is the same colour as the object.	Shadow is always black in colour.
2.	An image is erect but laterally inverted.	A shadow thought erect, is not laterally inverted.
3.	It gives all details of the object.	It gives no details of the object.
4.	Image gives us more information such as colour, structure etc.	Shadow does not provide such information.

2. An incandescent light bulb or lamp is a source of electric light that works by incandescence, which is the emission of light caused by heating the filament. Some objects can be heated until they glow to give off light. For example : Inside a glass bulb there is a thin wire filament made of the metal tungsten, which can be heated to over 2000°C without melting. Enough heat causes the tungsten to glow and to give off light.

3. The difference between regular and reflection are :

S. No.	Regular reflection	Irregular reflection
1.	When all the parallel rays reflected from a plane surface are parallel, the reflection is known as regular reflection .	When all the parallel rays reflected from a plane surface are not parallel, the reflection is known as diffused or irregular reflection.
2.	Reflection from a smooth surface like that of a mirror is an example of regular reflection.	Reflection from a rough surface, like that of a cardboard, is an example of irregular reflection.
3.	Images are formed by regular reflection	Images are not formed by irregular reflection.

4. A mirror is an object that reflects light in such a way that, for incident light in some range of wavelengths, the reflected light preserves many or most of the detailed physical characteristics of the original light. When we see our image in a plane mirror, we find it of same size, the left hand side pocket in our shirt will appear as the right hand side pocket of the image. Our right eye will appear as the left eye of our image. it means sides of the image inverted. The change of sides of the image formed in plane mirror is called lateral inversion.

5. Transparent object are the object that allows light to pass through them. Transparent objects, like clear water, clean glass and air allow light to pass thought them totally. We can see through these objects clearly.

(G) Answer the following question in long :

1. The difference between translucent and opaque objects :

S.No.	Translucent object	Opaque Objects
1.	We can partly see through these objects. They can also be called partially-see-through objects.	We cannot see through these objects. They can also be called not-see-through objects.
2.	An object on the other side of this material is visible to some extent.	The color of this material depends on the light it absorbs.
3.	The color of this material depends on the amount of light absorbed, scattered, and reflected.	An object on the other side of this material is not visible at all
4.	Muddy water, butter paper, fogged glass, tissue paper etc. We can not see clearly through them.	Wood, stone, clay, brick all are opaque objects.

2. Light travels in a straight line. It does not go around the corners. A shadow is the darkness that an object causes when it prevents light from falling on opaque object. It is only a dark region which does not contain any colour. The size of the shadow is relative to the position of the objects with respect to the source of light. When we stand in the sun our shadow is formed on the ground. When we walk in the sun, our shadow moves with us. The length of the shadow formed by sunlight changes with time. This is because the angle between the source (sun), the object and the ground changes. Our shadow is very long in the morning. It is shortest at noon. Its length again goes on increasing in the afternoon and becomes very long just before sunset. The sun rises in the east and casts shadow in the westward direction. The sun sets in the west casting shadows in the eastward direction.

3. The difference between luminous and non- luminous object :

S. No.	Luminous objects	Non-luminous objects
1.	Luminous Objects are objects which exhibit light in their own.	Non- Luminous Objects are objects that reflect light from luminous bodies.
2.	The sun, stars, burning candle, torch, a lamp, a lantern or an electric bulb, firefly etc. are the example of luminous objects.	Moon, earth,table, chairs are the example of non- luminous object.
3.	Luminous objects are responsible for our vision, as the human eye only perceives light that is being reflected into it.	The heavenly bodies like planets, moon and other than the sun and stars are also non–luminous objects.

4. The three kinds of light produced by liminous objects are **-**

(a) Incandescent Light : Some objects can be heated until they glow to give off light. For example : Inside a glass bulb there is a thin wire filament made of the

metal tungsten, which can be heated to over 2000°C without melting. Enough heat causes the tungsten to glow and to give off light.

(b) Fluorescent light : Some lamps produce light when they are cool or not hot. Instead of being used to build up heat, electrons are used to bombard molecules of a gas kept at a low pressure in a tube fluorescent light is cool light that uses much less electricity than incandescent light.

(c) Neon light : Neon lighting consists of brightly glowing tubes. Neon light produces light when electricity passes through tubes filled with gas under pressure. An electric discharge passing through neon gas causes it to give off red light. If other gases are added to neon, other colours are produced.

(H) Project

Do yourself

Chapter 13 : Magnets-Fun to Learn

(A) Multiple Choice Question (MCQ) :

Tick (✓) the correct answer :

1. (c) **2.** (c) **3.** (c) **4.** (b)

(B) Fill in the blanks with suitable words :

1. lodestone **2.** repel, attract **3.** two **4.** electromagnetism

(C) State the following statements are True or False :

1. True **2.** True **3.** True **4.** False **5.** False

(D) Match the following :

1. Iron **2.** South pole **3.** Natural magnet **4.** Demagnetizes magnet

(E) Answer the following question in very short :

1. Stone and wood are the two examples of non-magmatic materials

2. A magnet is a substance which attracts small pieces of iron towards itself and points in north-south direction when suspended freely.

3. Loadstone is a piece of magnetite or other naturally magnetized mineral, able to be used as a magnet.

4. The magnet has two poles, north pole and south pole. Likes poles are always repel and unlikes poles are always atteact.

5. Hard iron and nickel are the strong permanent magnet.

(F) Answer the following question in short :

1. When we brought two magnets are close together, they react, if we place like poles north and north, south and south they will repel each other. If we bring opposite poles north and south, south and north they will attract and stick each other. So like poles repel and unlike poles attract.

2. A magnet can be demagnetized when it causes disorder to the unit magnets within the magnetic material. Strike the magnet first with a hammer, heat it strongly, and then subject it to AC current to eliminate magnetic ability completely.

3. A magnetic compass is an instrument used to find directions. The magnetic compass works on the directive property of a magnet. It consists of a dial with directions marked on it and a magnetized needle pivoted on a point so that it remains free to rotate about the point. It always points towards north and south direction at rest.

4. Some materials are difficult to magnetize. But once magnetized they tend to stay that way. These objects are called permanent magnets. Hard iron, nickel or cobalt are the example of very strong magnets.

(G) Answer the following question in long :

1. We have noticed a freely suspended magnet always aligns itself in the north-soulth pole because the earth itself behaves as a bar magnet. Magnetic poles of the earth are near the geographical north and south poles of the earth. North pole and south pole attract each other but same poles do not attract. If we bury an iron rod in earth in the direction in which a freely suspended magnetic needle stays, then after some time the rod becomes a magnet.
2. A freely suspended magnet always rests pointing in the north-south direction. This property of magnet is called its directive property. Directive proprty of the magnets is the facing the north pole and south poles towars the geographic north and south ple respectively. Take a bar magnet and suspend it from a string tied to its middle, so that it can rotate freely. If is a freely suspended magnet because it is free to move in any direction. The freely suspended bar magnet points in the North and South directions, when it comes to rest.
3. Double touch method is the process an electromagnet is made out of a ferromagnetic substance (preferably use a large–sized iron nail), a copper wire and a battery (for safety purposes use the D–cell). Initially a copper coil must be tightly coiled around the iron nail at least 10 times. The ends of the copper wire must be left free. Connect the lower end of the copper wire to the negative point of the battery and the upper end of the copper wire to the positive point of the battery. This magnet also works for sometime after it has been disconnected from the battery. Test the magnet by using the light–weight pins. The electromagnet is nowadays, used as an industrial magnet. The best example of an industrial electromagnet is of a crane that is used in salvage yards.

(H) Formative assessment :

Group Discussion

Do yourself

Chapter 14 : Electricity and Circuits

(A) Multiple Choice Question (MCQ) :

Tick (✓) the correct answer :

1. (b) **2.** (c) **3.** (b) **4.** (a) **5.** (a)

(B) Fill in the blanks with suitable words :

1. two **2.** good conductor **3.** direct **4.** alternating current

(C) State the following statements are True or False :

1. False **2.** False **3.** True **4.** True **5.** True

(D) Match the following :

1. DC current **2.** Insulator **3.** Wire **4.** Dry cell **5.** Tungsten

(E) Answer the following question in very short :

1. A Switch is a device for making and breaking the connection in an electric circuit.
2. Rubber, plastic and glass are the example of insulators.
3. Metals, acid and tap water the are example of conductors.

4. **Uses of electricity :** (i) Electricity is used to light up our homes, rooms etc.
   (ii) The electricity that you use flows through wires as electric current.
   (iii) It is used to running washing machine.
   (iv) It is used to running refrigerator.
5. There are two terminals of a cell (i) Positive (+) terminal and (ii) Negative (-) terminal

(F) Answer the following question in short :

1. An open-circuit is the difference of electrical potential between two terminals of a device when disconnected from any circuit. A circuit which has a break in its connections is called an open circuit.
2. **The difference between Conductor and Insulator are :**

S. No	Conductor	Insulator
1.	Conductors are the substances which allow the electricity to pass through them.	Insutors are the substances which not allow the electricity to pass through them.
2.	Metals, acid, tap water, salt solution, human body, moist air, charcoal etc. are good conductors.	Rubber, plastic, wood, glass, dry air etc. are the examples of insulators.

3. An electric circuit is a path in which electrons from a voltage or current source flow. A complete path is needed for the electric current to flow continuously. A complete circuit with no break in between is called a closed circuit. A circuit which has a break on its connections is called an open circuit. The point where those electrons enter an electrical circuit is called the "source" of electrons.
4. When the current flowing in one direction only is called direct current or simply D.C. The current in dry cells and batteries is direct current and while the current which moves back and forth reversing its direction regularly is called alternating current or simply A.C. The current which we use in our houses is called alternating current.
5. An electricity is the good servant but is the bad master. The precaution while using electricity are -
   (i) Never handle appliances when your hand are wet or when you are standing in water.
   (ii) Never overload a circuit by connecting too many appliances to it.
   (iii) Wear the rubber gloves or rubber shoes while handling electrical appliances.
   (iv) While repairing electrical appliances check that it is not connected to the mains.
6. An electric bulb has an outer glass cases that is fixed to a metallic disc. A coiled wire that is called the filament. It is made of tungsten metal, is fixed inside the glass case. The filament is connected two thick wires, one wire touches the metal casing it is the negative terminal, while the other wire which touches the metal tip or bases it is the positive terminal. The terminals of bulb do not touch each other. The electric bulb is filled with a mixture of insert gases like argon, neon etc. As electric current passes into the bulb, the tungsten filament glows white hot thus giving us the necessary artificial light. In cases there is a sudden increase in the current allowed to flow into the bulb, the filament might break this getting the bulb fused.

(G) Divide yourself into groups of four. Use the materials given below in an electric circuit and state whether they are insulators or conductors.

Do yourself

(H) Experiment Activity

Do yourself

(A) Multiple Choice Question (MCQ) :

Tick (✓) the correct answer :

1. (c) **2.** (b) **3.** (c) **4.** (b) **5.** (b)

(B) Fill in the blanks with suitable words :

1. underground **2.** solid **3.** 15 percent **4.** pure **5.** water

(C) State the following statements are True or False :

1. True **2.**False **3.** True **4.** True **5.** True

(D) Match the following :

1. 37°C **2.** Distilled water **3.** Plants **4.** Soil **5.** Less rainfall

(E) Answer the following question in very short :

1. When the water spread over large areas of nearby lands causing damages and these overflow of water is known as Floods.

2. Water is our natural resource. Fresh water is found in the rivers, in most lakes and frozen in the polar ice caps.

3. When the rain falls, some of the water seep through the soil deep into the ground and collect over the non-porous rock as underground water.

4. Human body needs 8-10 glass of water a daily.

5. 70 percentage of water in human body.

6. A Potable water is a water which is suitable for human consumption without causing adverse health effects.

(F) Answer the following question in short :

1. Water is important in life because all chemical reactions such as digestion, in the body take place in water. Water carries nutrients, hormones, disease fighting blood cells, and waste products to and from. Under normal conditions, we need about two litre of water daily to replace the water lost through breathing and body wastes.

3. The flood affects humans and animals in many ways are—

(i) During the floods there is shortage of food and drinking water as everything as destroyed by water.

(ii) Heavy floods also cause lost of life. Many animals get swept away in floods.

(iii) On account of floods, daily life is disrupted. People are forced to stay in their houeses in a helpless condition.

(iv) Even when water recedes, there is a fanger of spreading various wastes-borne diseases.

(v) Floods wash away the top layer of the soil resulting in soil erosion.

(vi) Floods cause extensive damages to crops. This may cause acute food shortage and death due to hunger.

4. The water table is the upper surface of the zone of saturation. The zone of saturation is where the pores and fractures of the ground are saturated with water.The water table is the surface where the water pressure head is equal to the atmospheric pressure.

5. Water is natural substance on the earth.The water which is suitable for human consumption without causing adverse health effects is called potable water.

6. The ways to protect yourself during thunderstorms are :

(i) Taking Shelter and Staying Safe.
(ii) Stay away from windows.
(iii) Don't touch anything metal or electrical.
(iv) Stay inside in your home.

(G) Answer the following question in long :

1. The process of collecting rain water from roofs and street concern and storing it for further use is called rainwater harvesting. This method does not only arrests ground water table and can help augment water supply. Individuals at their home can capture rainwater on their roofs it in some underground tanks. The harvesting of rainwater simply involves the collection of water from surfaces on which rain falls, and subsequently storing this water for later use. Normally water is collected from the roofs of buildings and stored in rainwater tanks. This is very common in rural Australia. Water can also be collected in dams from rain failing on the ground and producing runoff. This water can be used for washing the clothes and watering the plants and many other uses of water.

2. (i) Plants also need water for photosynthesis.Water is necessary for plant because water helps in the process of photosynthesis by which plants prepare their food.
(ii). Water helps in the transport of nutrients and minerals from the soil to the plants.
(iii) Water helps in the maintenance of the plants structure by providing the appropriate pressure to the plant tissue.
(iv) Water provides habitat in the form of ponds, rivers, lakes and sea for the large number of sea plants.

3. **Difference between potable water and rain water :**

S. No	Potable water	Rain water
1.	Potable water is used for drinking.	Rain water can be used for washing the clothes and watering the plants and many other purposes.
2.	Potable water makes up about 60% of weight in men and 55% of weight in women.	Rain water is dangerous for the health of human being.
3.	Potable water is used in cooking by the humans.	Rain water is not used for cooking.
4.	Potable water can be obtained from wells,tubewells, handpumps and taps	Rain water can be obtained from rain only.
5.	This water reached us by the way of supply pipes.	Rain water reached us by the way of clouds and then fall down in the form of rain ,hail, dew and snow.

5. Lightning is an electric current. It is a spark or streak of electric charge. When two clouds come and meet each other, a current flowing between a cloud and the surface of the earth, between clouds or with in cloud. Lightning conductor is a device which passes all electric charge of clouds passing over it into the ground. The molecules have extra electrons compared to the surface of the earth. As the charge builds up a point is reduced at which the air can no longer block the passage of electricity.

6. Rain is a major component of the water cycle and is responsible for depositing most of the fresh water on the Earth. It provides suitable conditions for many types of ecosystems, as well as water for hydroelectric power plants and crop irrigation. When the clouds huddle together, they get bigger and heavier. The small droplets come together to form big drops. The clouds, now no more remain suspended up in the air. They begin to drift down faster. When they come closer to earth, the big drops start dropping down as rain water.

(H) Project :

Do yourself

(I) Science Puzzle :

1. Rainfall **2.** Lightning **3.** Evaporation **4.** Precipitation **5.** Harvesting

Chapter 16 : Importance of Air

(A) Multiple Choice Question (MCQ) :

Tick (✓) the correct answer :

1. (c) **2.** (b) **3.** (c) **4.** (a) **5.** (b)

(B) Fill in the blanks with suitable words :

1. photosynthesis **2.** wind **3.** 0.03% **4.** oxygen **5.** moving

(C) State the following statements are True or False :

1.True **2.** True **3.** False **4.** False **5.** False

(D) Match the following :

1. Humans **2.** Gills **3.** 78 percent **4.** Urea **5.** CO_2

(E) Answer the following question in very short :

1. Oxygen, carbon dioxide and nitrogen are three gases present in air.

2. There are 78 percent nitrogen present in atmosphere.

3. Oxygen is the gas dissolved in water.

4. All living things like as humans and animals needs to breathe the oxygen in the air for remain to alive.

(F) Answer the following question in short :

1. **Composition of air are- Nitrogen (N_2) :** In our atmosphere nitrogen 78 percent is present. It plays a vital role in maintaining the continuity of life on earth.
Oxygen (O_2) : Twenty one percent oxygen is present in the atmosphere. All living organisms need oxygen for breathing. Oxygen is known as life supporting gas
Carbondioxide (CO_2) : Carbon dioxide gas is present in very small quantity in the atmosphere. It makes up only 0·03% of air.

2. The various combination of gases are present in air Twenty one percent oxygen is present in the atmosphere. All living organisms need oxygen for breathing. Oxygen is known as life supporting gas. While Carbon dioxide gas is present in very small quantity in the atmosphere. It makes up only 0·03% of air.

3. **The uses of oxygen are :** (i). Oxygen is essential for burning or combustion. There can be no fire without oxygen.
(ii) Aquatic animals, like fish and crabs use oxygen dissolved in water to breathe.
(iii) Liquid oxygen, which is very cold, is used a propellant for rockets.

The Uses of carbon dioxide :

(i) The plants use the carbon dioxide to prepare their food in photosynthesis.

(ii) Human and animal beings release carbon dioxide during breathing.

(iii) Carbon dioxide is also used to prepare fizzy drinks like soda water.

4. Air is an important for the plants to photosynthesis. The plants (their green leaves) use the sun's energy to combine water from the soil and carbon dioxide from the air to make food for themselves. Photosynthesis also yields a waste product oxygen which is consumed by animals and humans. Air is most important for plant germination. The process of germination requires three things-Moisture, oxygen and the temperature. Gemination is the early growth stage of an embryo plant. After seeds ripen, they are usually scattered for away by the blowing air (wind) when they start a new plant.

5. In 1890, a Danish inventor increased the usefulness of the wind machines by developing a wind mill that could generate electricity. Wind flow is harnessed to obtain mechanical energy for fetching water from wells and rivers. In coastal areas and hilly region, where the wind blows at high speed, a wind mill can be used for supply of electricity to small towns. So air is the sources of energy.

(G) Answer the following question in long :

1. Air is the most important thing for all living things. Nobody can survive in its absence.The need of air are—

(i) Plants used air in Photosynthesis : Air is important for the plants to photosynthesis. The plants (their green leaves) use the sun's energy to combine water from the soil and carbon dioxide from the air to make food for themselves.

(ii) Germination : The air is most important for plant germination. The process of germination requires three things - Moisture, oxygen and the temperature. Gemination is the early growth stage of an embryo plant. After seeds ripen, they are usually scattered for away by the blowing air (wind) where they start a new plant.

(iii) Vital for Humans and Animals : Respiration : All living things as humans and animals need to breagthe the oxygen in the air in order to remain alive. The body burns its food in this oxygen to provide heat and energy. In this process carbon dioxide is produced and is carried by te blood to the lungs and breathe out. This process is called respiration.

2. An atmosphere is a layer of gases surrounding a planet or other material body, that is held in place by the gravity of that body. We live on the earth and there is a thick layer of air all around the earth. Air forms the earth's atmosphere. The atmosphere extends to a height of about 300 kilometres above the earth's surface. As we go high up in the atmosphere, the amount of air becomes lesser.The atmosphere is divided into five layers : Troposphere ,Stratosphere,Mesosphere ,Thermosphere,Exosphere.

3. Air has many uses. Some of them are as follows :

(i) Air contains oxygen, which is essential for life. All living things need air to breathe. The air we breathe in is inhaled air. The air we breathe out is exhaled air.

(ii) Air supports burning or combustion. the oxygen present in air is essential for burning. We burn fuels to cook food, generate heat and electricity, run industries and drive vehicles.

(iii) The nitrogen present in air is essential for the growth of plants. Plants take in nitrogen directly from the air or from the soil.

(iv) A layer of ozone gas present high up in the atmosphere protects us from the harmful ultraviolet rays of the sun. Also during daytime, the atmosphere prevents excessive heat from the sun from reaching us. At night, the atmosphere traps the surface heat and prevents it from escaping.

(v) Moving air, called wind, has great force. It enables the movement of sailboats and gliders. It runs windmills, which are used to generate electricity. Wind also helps I the dispersal of seeds.

(vi) Carbon dioxide is taken from air by plants for photosynthesis, the process of making their food. The air we breathe out contains carbon dioxide. Exhaled air can be tested for the presence of carbon dioxide.

(H) Group Discussion :

Do yourself

(I) Given below are a few jumbled words. Arrange them into meaningful words.

1. Growth **2.** Atmosphere **3.** Nitrogen **4.** Composition **5.** Composition

(J) Define the following :

1. **Germination :**The air is most important for plant germination. The process of germination requires three things– Moisture, oxygen and the temperature. Gemination is the early growth stage of an embryo plant. After seeds ripen, they are usually scattered for away by the blowing air (wind) where they start a new plant.
2. **Stratosphere :** It is second layer of atmosphere. It extends upto about 12 to 50 km above the earth surface. Its lower part contains the ozone layer. It absorbs ultraviolent rays from the sun.
3. **Oxygen :** Twenty one percent oxygen is present in the atmosphere. All living organisms need oxygen for breathing. Oxygen is known as life supporting gas.
4. **Mesosphere :** Mesosphere is the thrid layer above the stratosphere extending from 50 to 80 km above the earth's surface. This is where we see 'falling stars'. It is the coldest region of the atmosphere.
5. **Nitrogen :** In our atmosphere nitrogen 78 percent is present. It plays a vital role in maintaining the continuity of life on earth.

Chapter 17 : Waste Management

(A) Multiple Choice Question (MCQ) :

Tick (✓) the correct answer :

1. (c) **2.** (a) **3.** (a) **4.** (c)

(B) Fill in the blanks with suitable words :

1. throw **2.** management **3.** waste **4.** duster **5.** trees

(C) State the following statements are True or False :

1. False **2.** True **3.** True **4.** False

(D) Answer the following question in very short :

1. Waste is unwanted materials and objects that people have thrown away. It is often also called garbage and rubbish. Waste can be solid, liquid, or gas.
2. Composting is the process that the conversion of solid biodegradable waste converted into manure by the action of micro-organisms like fungi and bacteria.

3. Recycling is the process that making the useful things from waste material.
4. Animal dung and leaves are the examples of biodegradable waste.
5. Plastic and soap are the example of non-biodegradable waste.

(E) Answer the following question in short :

1. The term vermicomposting means the use of earthworms (Plate 9) for composting organic residues.Vermi Composting is the process of preparing compost with the help of red worms.
2. The conversion of solid biodegrable waste converted into manure by the action of micro-organisms like fungi and bacteria is called composting. While Vermi Composting is the process of preparing compost with the help of red worms.
3. Recycling is the process that making the useful things from waste material.It is not only environment friendly but also energy saving. For example, old newspaper can be recycled to make tissue paper and cardboard. A typical recycling plant grinds garbage into a pulp.
4. **The difference between biodegradable and non biodegradable waste are :**

S.No.	Biodegradable waste	Non-biodegrafable waste
1.	Garbage that can be decomposed or broken down by the action of micro-organisms like bacteria and fungi are called biodegrafable wastes.	Garbage that can not be decomposed or be broken by action by the micro-organisms are called non-biodegrafable wastes.
2.	Peels and cutting of fruits and vegetables, left over food, leaves, animal, dung, plant residue and agricultral wastes are some example of biodegradable wastes.	Plastic detergents, soaps, metal-glass, pesticides, chemicals are some examples of non-biodegrafable wastes.

5. Landfill is a large, low-lying open areas outside the city or a town where the garbage collected from a city or town is dumped. Once the landfill is completely filled with garbage. it is covered with soil and left as such for about 15-20 years, so that waste gets totally decomposed. Landfill are often the most cost-efficient way to dispose of waste. especially in countries like the United Stated with large open spaces.

(F) Answer the following question in detail :

1. **The Management or Disposal of waste are :**
   - **(i) Landfill :** Landfill is a large, low-lying open areas outside the city or a town where the garbage collected from a city or town is dumped. Once the landfill is completely filled with garbage. it is covered with soil and left as such for about 15-20 years, so that waste gets totally decomposed.
   - **(ii) Burning :** Burning of garbage at the sight of dumping, apartment sights, factories and hospitals is another way to dispose waste. But this burning becomes a source of air pollution. Burning your household garbage is dangerous to your health and our environment.
   - **(iii)Compositing :** The conversion of solid biodegradable waste converted into manure by the action of micro-organisms like fungi and bacteria is called composting. Composting is a way of harnessing the natural process of decomposition to speed up the decay of waste.

(iv) Recycling : Making useful things from waste material is called recycling. It is not only environment friendly but also energy saving. For example, old newspaper can be recycled to make tissue paper and cardboard. A typical recycling plant grinds garbage into a pulp. A magnetic separation pulls iron and steel scrap. This scrap is recycled and used again to make useful products as fertilizer, paper to aluminum cans etc.

2. Plastic : Plastic pollution involves the accumulation of plastic products in the environment that adversely affects the wildlife, wildlife habitats, or human beings which live on the earth. The plastic and plastic products are non-biodegradable waste hence they do not involve in the soil and remains forever on earth like plastic bottle and plastic begs.

(G) Group Discussion :

Do yourself

(H) Rearrange the following words into meaningful words :

1. Burning **2.** Biodegradable **3.** Recycling **4.** Landfills

❑