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Class 6

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INDEX

Science & Technology
Chapter 1: Food

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Recap Questions :

A.1 Food is something that is taken in by living organisms to get energy to survive.

A.2 It is important to take proper food to keep one-self healthy at all times.

A.3 Sick person is advised to take restricted diet by the doctor because the state of health of sick person does not allow him to take normal diet.

A.4 There is so much of variety in food habits in our country due to diversity in climate and cultural back ground of different regions in our country.

A.5 The delicious dishes prepared in

Bengal are – fish, rice, sweets made up of cheese.

Punjab are – Paranthas, rich curries, Chhole–bhhature etc.

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Recap Questions :

A.1 Green plants, which can prepare food by their own are producers. Animals like cow, deer etc. that feed on green plants are the primary consumers, where as human beings that depend on green plants and animals like cow etc. for their food requirements are secondary consumers.

A.2 A particular part of plant is utilized as food and not the other because only that particular part of plant stores food not the others.

A.3 Proteins, vitamins and minerals are the nutrients derived by eating pulses, fruits and vegetables.

A.4 Milk is a sufficient diet for a newly born infant because it has a lot of protein which is one of the vital need in our body.

A.5 Milk and pulses are some high protein rich foods in a vegetarian diet.

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Part "A"

Answer in one word only :

D1. Lion, tiger D2. Milk, eggs D3. Tea

D4. Fish D5. Sugarcane

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Part "B"

Answer in 3 and 4 sentences :

A.1 We need food to provide us energy to survive, i.e. to do work, grow and for body maintenance.

A.2 Different organisms need different kind of food as some animals take raw food whereas human beings mostly depend on cooked food. The food taken depends on the choice, taste and the region to which an organism belongs.

A.3 The five food items and their parts we eat and get from plants are :

1. Potato – stem
2. Carrot – root
3. Pulses – seed
4. Mango – fruit
5. Cabbage – leaves

A.4 Honeybees are the source of honey which is prepared from the nectar of flowers sucked by them. It is used in the preparation of many medicines.

Answer in detail :

B.1 Food is significant to us as it provides us energy to live, to do work, grow and to maintain repair system of body.

B.2 A diet having all the essential nutrients of food in proper amount is said to be a balanced diet.

It is necessary to keep our body healthy and fit.

B.3 As pulses and cereals are rich sources of proteins, vitamins and minerals, so, they help in body building and protecting our body from various diseases.

B.4 Examples of vegetables derived from :

1. Stem : potato, ginger etc.
2. Roots : Radish, carrot etc.
3. Leaves : Cabbage, spinach etc.

B.5 Spices, provide good taste and health to the body where as tea and coffee act as stimulants for our body. Their sources are the different parts of plants. We get tea and coffee from the leaves and seeds of the plants where as spices like clove we get from the bud of a plant.

Chapter 2: Components Of Food

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Recap Questions :

A.1 A nutrient is a chemical substance that gives us energy and the raw materials for growth and development of body and also to keep it healthy and disease free. Proteins and vitamins are its two examples.

A.2 Meals should have different kinds of food types to get all the nutrients regularly.

A.3 The carbohydrates are better nutrients to consume because they have more oxygen than fats and hence they need less oxygen to burn to give us energy than the fats.

A.4 ***Test for starch*** – Take a small portion of ginger or potato and mash it in a mortar with the pastel in the laboratory. Place a very small quantity of the mashed material in a petridish and pour a drop of iodine solutions on it. If the blue black colour appears, it shows the presence of starch in the food item.

A.5 A few sources of food rich in carbohydrates are – rice, wheat, bread burgers, jams, jellies etc.

Food rich in proteins are – eggs, milk, kidney, liver, fish, meat, poultry, yeast, soya-beans etc.

Food rich in fats are – ghee, butter, vegetable oils, egg yolk.

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Recap Questions :

A.1 It is advisable to take doctor's advice before taking vitamin tablets regularly because overdose of certain vitamins may be harmful for our body.

A.2 Green vegetables and fruits are best eaten raw and with skin because they make roughage which help in digestion of food and avoid constipation.

A.3 One should drink lot of water and eat juicy fruits to avoid dehydration while going out in hot summer afternoon.

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Part "A"

Answer in one word :

D.1 Carbohydrates and fats

D.2 Vitamin A

D.3 Anaemia

D.4 Water

D.5 Balanced diet

Part "B"

Answer in three or four sentences :

A.1 Roughage is fibrous indigestible part of food mainly having cellulose which helps in easy bowl movement. Yes, it is useful for our body.

A.2 The major components of our food are – carbohydrates, fats, proteins, vitamins and minerals :

Carbohydrates : wheat, rice

Fats : ghee, butter

Proteins : eggs, pulses

Vitamins and Minerals : green leafy vegetables and fruits

A.3 Fats and carbohydrates provide energy to the body. Fats also help in absorption and transportation of vitamin A, D, E and K.

Answer in details :

B.1 Water has great importance in our life due to following functions :

i. It maintains internal environment and regulates temperature.

ii. It helps in the transportation of nutrients and excretion of waste material from the body.

B.2 Vitamin A

Sources : Milk, cod liver oil, carrots, papaya etc.

Functions : Help in vision, control growth.

Symptoms and deficiency diseases : poor night vision

Vitamin B

Sources : dried legumes cereals, pork

Functions : Overall growth

Symptoms and deficiency diseases : Loss of appetite, Beri-beri

Vitamin D

Sources : egg-yolk, milk etc.

Functions : Help in bone formation

Symptoms and deficiency diseases : bowlegs, painful bones, rickets in children, osteomalacia in adults.

Vitamin K

Sources : Cauliflower, spinach, cabbage, egg yolk etc.

Functions : Essential for blood clotting.

Symptoms and deficiency diseases : Haemorrhage continuous bleeding from the injured site, prolonged blood clotting time.

B.3 The term balanced diet means diet having all the essential nutrients of food in required amount by the body.

B.4 The need of nutrients by our body depends on the age, weight, health or type of job. Eating more food than the body needs may lead to fatness. So the people engaged in heavy jobs can take rich food daily whereas the other people do not.

B.5 A menu for a vegetarian person is as follows :

Cereal (rice, wheat)	520 gm
Pulses	50 gm

Green leafy vegetables	40 gm
Other vegetable	70 gm
Roots and tubers	35 gm
Sugar / molasses	35 gm
Oil / fat	45 gm
Milk	200 gm
Water	8 – 10 glasses a day
Roughage	Provided by foods above mentioned

B.6 Functions of phosphorous are –

i. It helps in bone formation, membrane function.

ii. It helps to maintain water balance in body.

Functions of calcium are –

i. It helps in bone and enamel of tooth formation.

ii. It is essential for blood clotting.

If there is scarcity of such minerals in our body than there would be poor skeletal growth and soft bones in our body. Deficiency disease, Rickets can also be occur in the body.

B.7 Difference between malnutrition and under nutrition is :

Malnutrition is caused due to lack of major nutrients in our food.

But, under nutrition is caused due to intake of less amount of food.

Chapter 3 : Changes Around Us

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Recap Questions :

A.1 A change means when a thing alter its position, shape, size, state, temperature, composition, structure or colour.

A.2 This is a chemical change because petrol burns to run a car and new substances like carbon-monoxide gas is produced.

A.3 Difference between natural and man made changes is –

Natural changes are not being controlled by us as they occur by their own.

But man made changes are under control of us as they occur by human activities.

Ex. of Natural Changes : Opening and closing of flowers, formation of day and night etc.

Ex of Man made changes are : Moving fans, running cars, burning of candle etc.

A.4 Physical changes : boiling of water, growth of nails, stretching of rubber–band.

Chemical Changes : Making of chapatis, flower blooming.

A.5 Raining is a physical change because rain water later on again evaporates to form water vapours which in turn form clouds. Clouds again cause rain. So, no new substances are formed and change is reversible.

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Recap Questions :

A.1 Some changes happening due to heating are :

i. Heating of water, changes it into its vapour.

ii. Making vegetable – rice pullao from raw rice and vegetables.

iii. Making chapatis from dough.

A.2 By mixing iron fillings and sulphur, we get a mixture and when we heat this mixture, a compound iron sulphide will be produced.

$$\text{Iron + Sulphur} \xrightarrow{\text{heat}} \text{Iron Sulphide (compound)}$$

A.3 No, man made changes cannot be always good like cutting of trees, burning of wood etc.

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Part "A"

Answer in one or two words :

D.1 Physical changes

D.2 Chemical changes

D.3 Pasteurization

D.4 Floods

D.5 $\text{Iron + Sulphur} \xrightarrow{\text{heat}} \text{Iron Sulphide}$

Part "B"

Answer the following in three or four sentences :

A.1 Melting of wax is a physical changes because melted wax can be again solidifies into wax on cooling, hence there is not changes in its properties.

A.2 (i) Desirable change : changing of milk into curd

(ii) Undesirable change : Earth quakes

(iii) Reversible change : Melting of ice into water

(iv) Irreversible change : Ripening of fruit

Answer in detail :

B.1 Natural changes are those changes which occur naturally and are not under our control are said to be natural changes. For example : beating of heart, ripening of fruit, formation of day and night etc.

Man made changes are those changes which are brought about by man for his own need and comfort and are under his control.

For example : moving fan, running cars, setting of milk into curd etc.

B.2 ***Physical Changes :*** These are the changes which show following features –

i. There is only change in physical properties like state, volume, colour etc.

ii. No new substance is formed.

iii. Substance regains its original properties by changing conditions.

iv. Change is temporary and reversible.

Example : changing of water into ice.

Chemical Changes : These are the changes which shows the following features –

i. The chemical properties get changed.

ii. New substance are formed.

iii. Original substance cannot be obtained by changing the conditions.

iv. Change is permanent and cannot be reversed.

Example : formation of curd from milk.

B.3 An activity to make a compound by mixing and heating is as follows –

Take some amount of iron fillings and mix it with yellow powder of sulphur. Now heat the mixture, a new compound Iron Sulphide will produced.

Reaction is as follows –

$$\underbrace{\text{Iron} + \text{Sulphur}}_{\text{mixture}} \xrightarrow{\text{heat}} \text{Iron Sulphide (compound)}$$

B.4 A chemical change can occur by passing electric current in a substance by breaking it into its components.

For example : When we pass an electric current through an acidulated water it breaks into its component – hydrogen and oxygen that shows a chemical change.

B.5 Desirable changes in nature are those changes which are useful for us and do not causes any harm to us.

For example : Blooming of flowers, ripening of fruits etc. Undesirable changes in nature are those changes which are not useful for us and are harmful for us.

For example : Earthquakes, Floods and droughts.

Chapter 4: Fibre To Fabric

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Recap Questions :

A.1 Fibre and fabric are closely related to each other. Fabric is made up of long, fine, continuous threads known as fibres, which are woven together closely.

A.2 There are mainly two kinds of fabric materials used for making dresses. These are :

(i) Natural fabric – Example : silk, cotton, wool etc.

(ii) Synthetic fabric – Example : Nylon, polyester etc.

A.3 Since the invention of fibres, the vast change have taken place in the concept of dressing up. Man started to cover his or her bodies with clothes made of fibres. Invention of sewing needles, machines totally bring revolutionary changes in the concept of dressing up.

A.4 A fibre is a long continuous thread, which is made up of very fine strands which are woven together to form a fibre.

A.5 The qualities that are examined in the cloth while we are buying it, are –

i. Quality of cloth
ii. Colour of cloth
iii. Rate of the cloth
iv. Texture of cloth

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Recap Questions :

A.1 Wearing of cotton clothes during hot summer days allows the sweat to be absorbed and evaporated and thus help to keep our body cool.

A.2 Sterilized cotton is used for medical purpose because it is free from infection causing germs and thus it is safe for us.

A.3 Difference between fabric and yarn is :

Fibres from a mass of cotton wool are taken out and twisted to form "Yarn". This process is called spinning.

Two sets of these yarns are arranged together to make a fabric. This process is called weaving.

So, yarn is woven to form a fabric.

A.4 Jute fibre is utilized in making of ropes because it is a stronger fibre.

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Part "A"

Answer in one or two words :

D.1 The main source of silk – silkworm

The main source of wool – sheep

D.2 Ginning

D.3 Natural fibre – Cotton

Man-made fibre – Rayon

D.4 Retting

D.5 Cocoon

D.6 Pashmina

Part "B"

Answer in three of four sentences :

A.1 Jute is a natural fibre which is obtained from the plant Patsun. Its applications are :

i. It is used in making ropes, carpets, gunny bags and foot wears.

ii. It is also used as dress material.

A.2 The two synthetic fibres are Rayon and Nylon :

Uses of Rayon :

i. It is used in making carpets, bandages etc.

ii. It is also used in febres.

Uses of Nylon :

i. It is used in making of tyre cord, ropes, nets etc.

ii. It is also used in making of dress materials like sarees, socks, ties, hosiery etc.

A.3 We wear woollen clothes in winter because woollen fibre have pores which trap air within them. Air acts as insulator and thus do not allow to escape heat from our body and keep us warm and comfortable in winters.

A.4 The right choice of the fabric is important because it makes us look good and keep us comfortable.

A.5 We get cotton from the cotton plant.

Two uses of cotton are :

i. It is used in making different dress materials and dresses also.

ii. It is also used for medical purposes.

Answer in detail :

B.1 Differences between cotton, jute, wool and silk fibres are –

Cotton :

i. It is a plant fibre. Cotton plant grows in black soil and warm climate.

ii. We get cotton from the flowers of cotton plants known as balls of cotton.

iii. It is used for making cotton clothes.

iv. It is not as stronger as jute.

Jute :

i. It is plant fibre. It grows in alluvial soil.

ii. We get jute fibre from the stem of jute plant.

iii. It is used for making ropes, carpets, gunny bags etc.

iv. It is much stronger than cotton.

Silk :

i. It is an animal fibre, which we get from the cocoons of silk moth .

ii. It is in the form of long continuous threads, which cover the body of larva to form a hard case called the cocoon.

iii. It is used for making of silk sarees and other dresses and articles.

iv. It is not stronger fibre but very much expensive.

Wool :

i. It is also an animal fiber which we get from the fleece of sheep or goat.

ii. Woollen fibres are very light and have pores in them.

iii. It is used for making sweaters, shawls etc.

iv. It is also stronger fibre. It helps to keep our body warm.

A.2 Some of the items made from synthetic fibres are – Ropes, nets, ties, sails of boats, blankets, carpets etc.

Such fibres are used for making these items because these fibres are more strong, wrinkle free, elastic, fungus resistant and do not dissolve in common solvents.

A.3 Advantages of synthetic fibres over natural fibres are –

i. Synthetic fibres are more stronger than natural fibres.

ii. They are wrinkle free and elastic also.

iii. They are fungus resistant but the natural fibres like silk do not.

A.4

Rain coat	–	Non porous (synthetic) fibre
Kitchen duster	–	Cotton
Blazer	–	Wool
Socks	–	Nylon
Fish net	–	Nylon
Vests	–	Cotton

A.5 ***Processing of cotton fibres*** – The flowers of cotton plant known as balls of cotton burst at maturity to give white fibres. They are then dried in Sun and become fluffy which are then hand picked from the plant. By the process of ginning the seeds of cotton are separated from the fibres. The ginned cotton is compressed with hydraulic presser to convert into huge balls, which are then send to industries. They are then cleaned, combed, straightened and converted into cotton fibres.

Chapter 5 : Materials Around Us

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Recap Questions :

A.1 All living or non living things are different kinds of *matter*. Matter gives rise to different kinds of *materials*.

Materials are made up of different *substances*.

A.2 To make the work or study easier and faster, the need of classification of substances arises.

A.3 Some objects made of –

i. Steel : utensils, curtain rods, almirah, cutllery etc.

ii. Wood : furniture, doors, windows etc.

iii. Cotton : curtain, towels, black board, duster etc.

A.4 Different kinds of matter are grouped on the basis of dissimilarities which make them so different from each other.

A.5 The basis of classification of matter is the common properties of the similar things.

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Recap Questions :

A.1 Difference between solid, liquid and gas is –

Solids have definite shape and volume, but liquids have no definite shape.

Gases neither have definite volume nor shape.

A.2 Different materials are different in their looks, texture, colours, state and hardness on the basis of which they are grouped into different classes. For example : metal shows luster or shine whereas cement and wood do not have shine of their own.

A.3 ***Solvents :*** The liquid which can dissolve certain solid substance is called solvent.

Solute : The solid substance which dissolves in a liquid is called solute.

A.4 Properties of metals are :

i. They show a typical lustre or shine.

ii. They are mostly hard and cannot be compressed by applying pressure.

A.5 ***Solution :*** When a solute completely dissolves in a solvent to form a uniform mixture, known as solution.

Soluble Substance : The substance which can dissolve in a solvent is known as soluble substance.

Insoluble Substance : The substance which cannot mix well in a solvent is known as insoluble substance.

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Part "A"

Answer in one or two words :

D.1 Plastic, wood

D.2 Iron key

D.3 Wood, stone

D.4 Oil

D.5 Air

Part "B"

Answer in three or four sentences :

A.1 Difference between transparent, translucent and opaque objects is :

Transparent Object : These objects allow light to pass through them. Example : glass, air etc.

Transluscent Objects : These objects allow partial light to pass through them. Example : waxed paper, butter paper etc.

Opaque Objects : These objects do not allow light to pass through them. Example : Stone, metal etc.

A.2 The liquid which can dissolve certain solid substance in it is called solvent and the solid substance which dissolve in it is called solute.

A.3 Two properties of metals are :

i. Metals are hard and cannot be compressed by applying pressure.

ii. Metals are good conductor of electricity.

Ex. : copper, aluminium etc.

A.4 Two advantages of classifying materials are :

i. It becomes easy to study the properties of different materials.

ii. It also becomes faster to understand their different uses for different purposes.

A.5 i. Heating helps in fast cooking of food in steel utensils.

ii. Heating also increases the process of dissolving solute into solvent.

A.6 Liquids, that allow electricity to pass through them are called electrolytes. Example : acidulated water, solution of NaoH and water.

Answer the following in detail :

B.1 Grouping of materials is necessary to make the work or study of different materials easier and faster.

B.2

Items of Kitchen	Group	Uses
i. Utensils	Opaque	cooking, eating
ii. Plastic Containers	transparent	for storing
Items of School	Group	Uses
i. Furniture	opaque	for sitting
ii. Notebook, books	Transluscent	for writing & reading

B.3 Some materials can conduct electricity that are called conductors but some materials do not conduct electricity, that are called Insulator.

B.4 The properties of, materials are –

i. Materials may be soild, liquid or gas.

ii. Materials may be soft or hard to touch.

iii. They be transparent, opaque or transluscent in nature.

iv. Some materials are heavy while others are light.

v. Some materials are good conductors of heat and electricity whereas some materials do not.

vi. Some materials are magnetic in nature but some are non–magnetic in nature.

Magnetic or Non–magnetic property of Materials :

Material which are attracted by the magnet are magnetic in nature. For ex. – pins, safety pins, keys etc.

Materials which are not attracted by the magnet are non–magentic in nature. For ex. – paper, cotton, glass etc.

B.5 Common properties, shown by the similar things is the basis of classification of materials.

Chapter 6 : Separation of substances

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Recap Questions :

A.1 No, most of the substance are not pure in nature. Only few are pure in nature. For ex. – salt in its crystalline form is pure.

A.2 Ingredients for making rice pullao are – Rice 200gms, ghee – 1TS, zeera – 1 TS, salt to taste.

Method : Wash the rice thoroughly with water and soaked them for ½ hour. Now, put the ghee in a pressure cooker and heat it. Put zeera seeds in it and then the soaked rice and salt in it. Heat it, till one whistle comes. After some time open the cooker, now it is ready to serve.

A.3 We call some nixtures homogenous and other heterogenous according to the mixing and separation of the components of the mixture. If the components of a mixture are thoroughly mixed and cannot be separated, it is called homogenous mixture. Ex – lemonade.

But if the components of a mixture are not thoroughly mixed and can be separated it is called heterogenous mixture. For ex. – mixture of sand and salt.

A.4 Pure substance – oxygen, iron, wood.

Mixtures – brass, soil, tap water.

A.5 Properties of mixtures are –

i. A mixture is made up of two or more kinds of particles.

ii. The components of mixture can be in any proportion or ratio.

iii. They can be easily separated by simple methods like hand picking, filtration etc.

iv. They retain their own properties even after they get mixed with each other.

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Recap Questions :

A.1 The basic needs for separation of substances are :

i. To remove useless and harmful things from the mixture.

ii. To get various useful products from other useful products for ex. – petrol, diesel, etc. are separated from crude oil.

A.2 Some instances where separation of components of mixture is done with hands are –

i. Separation of stones from the pulses before coking.

ii. Unwanted particles from Rice are also separated by hand.

A.3 "Sublimation" is a method, that should be used to separate a substance which sublimes on heating a mixture containing it.

This method is used to separate the two solids in which one of the solid substance convert into its vapour on heating and other remain in the China dish. For ex. – Mixture of ammonium chloride and sodium chloride is separated by this method.

A.4 Winnowing is a method used to separate heavier and lighter components of a mixture by wind or by blowing air.

Materials which are differ in their weight are separated by this method.

A.5 Magnetic separation is a method employed to separate iron scraps from waste materials.

This method is used when one of the components of a mixture is magnetic in nature. For ex. – sulphur is left behind.

Cranes fitted with powerful magnets are used to separate Iron scraps from waste materials as iron scrap get stick to the magnets and the other waste materials are left behind.

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Part "A"

Answer in one or two words :

D.1 Oil

D.2 Sieving

D.3 Residue

D.4 Distillation

D.5 Crystallized form of salt

Part "B"

Answer in three or four sentences :

A.1 Sieving : The method of separation used to separate particles of different size is called sieving.

It is a method used to separate coarse unwanted chaff from the wheat flour.

A.2 Two properties of mixtures are :

i. The components of mixture can be in any proportion or ratio.

ii. A mixture components can be separated by simple methods.

A.3 Pure substance has all the components alike but in impure substance all the components are different.

A.4 Adulteration of edible things means mixing of cheaper substances in pure things.

A.5 The solution which cannot dissolve any more of solute is called saturated solution.

Answer the following in detail :

B.1 Mixtures are substances composed of two or more kinds of particles which can be easily separated. Some common mixture found around us, are –

i. Air is a mixture of different gases – Carbondioxide 1%, oxygen 21%, Nitrogen 78%.

ii. Water is also mixture as many impurities are dissolved in it.

B.2 ***Homogenous Mixture :*** A mixture in which its components are mixed thoroughly and have the same ratio throughout is called Homogenous mixture.

For Example : salt dissolved in water.

Heterogenous Mixture : A mixture in which its components are not uniformly distributed and do not have the same ratio throughout is called Heterogenous Mixture.

For example : Mixture of chalk in water.

B.3 ***Sublimation :*** It is a method that is used to separate two solid substance in which one of them changes into its vapour directly on heating.

Activity : Take a mixture of ammonium chloride and sodium chloride in a china dish. Put an inverted funel over the China dish. Close the end of the stem of the funnel with cotton plug. Now, place the whole apparatus on a tripod stand over a wire guage and heat it on a low flame. After sometime, white fumes of Ammonium Chloride will use and deposit on the inside by the funnel on cooling and we can get solid ammonium chloride by scraping it off and the sodium chloride remain in the china dish.

B.4 Various methods of separation of solids from liquids are –

i. Sedimentation

ii. Decantation

iii. Filtration

iv Loading

B.5 ***Distillation :*** It is a process used to separate two or more miscible liquids, having different boiling points. For ex. – Mixture of alcohol and water can be separated by this method. Alcohol having lower boiling point than water. It starts boiling first. Its vapour are collected and condense to liquid form whereas water having higher boiling point boils later and its vapours are condensed later.

Chapter 7 : Living Things And Their Environment

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Recap Questions :

A.1 The components of environment are biotic (living things) and abiotic (non–living things). Example : air, water, soil, plants, animals etc.

A.2 We can say that something is living or not around us by these characteristics shown by them :

i. Living things breathe but non-living things do not.

ii. Living things need food, air and water to live but non-living things do not.

iii. Living things grow and reproduce but non-living things do not.

A.3 Some characters which are similar in all objects existing are :

i. All existing objects occupy space.

ii. They all show various metabolic activities.

iii. They all have mass or weight and can be felt by our senses.

A.4 Non-living things are different in some ways. These are :

i. They differ in shape, size and their application.

ii. They also differ in their masses.

A.5 All living and non-living things are some or the other form of matter because they occupy space, have mass or weight and perceived by our senses.

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Recap Questions :

A.1 Growth is irreversible change in size and mass which occurs due to multiplication of cells.

Plants growth is some what unlimited as compared to the growth of animals.

A.2 ***Autotrophic Nutrition :*** The mode of nutrition in which the green plants make their own food in the presence of sunlight and chlorophyll is known as Autotrophic nutrition.

A.3 Excretion in plants and animal is necessary because harmful waste products are removed from the body by this process.

A.4 Viruses are regarded as living when inside the living cell because they multiply rapidly inside the living cell.

A.5 The movement of body parts of plants towards light is called Phototropism. Sunflowers show phototropism as they always face towards the sun.

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Part "B"

Answer in one or two sentences :

A.1 Human beings, plants, animals, bacteria etc. are biotic component of environment.

A.2 The plants which are found on land are called mesophyte.

A.3 The movement of roots, towards the earth due to gravitational force of earth is called geotropism.

A.4

Average life span	Animals
70 – 90 years	elephant
01 – 04 years	house fly
120 – 150 years	tortoise

A.5 Fish respires through gills.

A.6 Living things : water lily, plant, table fish

Non-living things : boat, door

Difference Between :

B.1 ***Biotic Component :*** Al living things that found in any particular habitat comprise biotic component. Ex. : plants, animals etc.

Abiotic Component : The physical factors like temperature, sunlight, air, water, soil etc. comprise abiotic components.

B.2 ***Autotrophic Nutrition :*** The type of nutrition in which green plants make their food by process of photosynthesis is called autotrophic nutrition.

Heterotropic nutrition : The type of nutrition in which non-green plants and other animals depend on plants for their food is called hetrotrophic nutrition.

B.3 ***Hydrophytes :*** The plants which flourish in aquatic habitat are called hydrophytes. Eg. water lily.

Mesophytes : The plants which grow on land are called mesophytes. Eg. :Rose plant.

B.4 ***Aquatic Habitat :*** The living place of living organisms like sea, river, lake, pond are known as aquatic habitat.

Aerial Habitat : The living place of living organism like in air or tree is aerial habitat.

Answer in detail :

C.1 ***Habitat :*** It is a part of the total environment that provides food, shelter and best conditions for the survival, propagation and breeding for the living things. It has two major components :

i. Biotic

ii. Abiotic

C.2 Interaction of living and non-living things in nature means plant and animal lives are regulated by proper interaction between non-living things such as air, soil, water etc. All life depends on these abiotic factors for survival.

C.3 Some plants show movement towards the light. This is called phototropism. The flowers of some plants open and close and some flowers face towards the Sun in response to light.

C.4 Animals and plants are useful to each other as plants as a result of photosynthesis gives food and oxygen to animals for their survival whereas animals use this oxygen for respiration and gives out carbon dioxide gas which is used by plants for photosynthesis.

C.5 The differences between aquatic and desert habitats are :

i. In aquatic habitat, the plant and animals live in water bodies like sea, river, lake, pond etc.

ii. But in desert habitat the plants and animals live in very hot and dry conditions.

Chapter 8 : Plants – Form and Function

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Recap Questions :

A.1 The different parts of a plant are roots, stem, leaves, bud, flower and fruits.

A.2 ***Annuals :*** The plants which complete their life cycle in one season are called Annuals. *For example :* wheat, rice, gram etc.

Biennial : The plants which complete their life cycle in two seasons are called Biennial. *For example :* radish, carrot, turnip etc.

Perennial : The plants which live for many years are called perennial. *For example :* Trees of neem, guava, jamun etc.

A.3 Difference between herbs, shrubs and trees are :

Herb : i. Soft stemmed plant
ii. Height of plant measures less than a metre.
Ex – Tulsi, gras etc.

Shrub : i. Slightly woody stem
ii. Height of plant measures 1–3 metres.
Ex. – lemon, henna etc.

Trees : i. Hard, woody stem
ii. Height of trees measures more than 7 metres.
Ex. – Mango tree, peepal tree etc.

A.4 The three main functions of the stem are :

i. It connects the root system of plant to all other parts.
ii. It conducts water and mineral salts from roots to all other parts of the plant.
iii. It carries the food prepared by the leaves to all other parts of plant.

A.5 The two modifications seen in stems of xero phytic plant like cactus are :

i. Leaves are modified into spines.
ii. Stems are succulent to store and conserve water.

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Recap Questions :

A.1 The main function of the leaves are –

i. They prepare food for the plant by the process of photosynthesis.

ii. Excess of water is removed from the pores, present on the lower surface of leaves called stomata.

iii. They provide oxygen to all living beings to survive.

A.2 Different parts of plants are modified to perform certain functions or to suit the habitat to survive.

A.3 It is done to utilize the already present sugar by the plant.

A.4 Difference between Tap root system and fibrous root system is :

Tap Root : It is a main root from which secondary and tertiary roots arise.

Ex. : radish, carrot etc.

Fibrous Root : It has no main root but a number of fibre like roots arise from the base of stem in a cluster.

Ex.: wheat, maize etc.

A.5 Stem : ginger

Leaf : cactus, pea-tendrils

Roots : carrot, radish, sweet-potato.

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Part "A"

D. Match the column A with column B

	A		B
1.	Flower	–	reproductive part of flower
2.	Leaf	–	transpiration
3.	Root	–	absorb water from the soil.
4.	Stem	–	bears leaves, bud and flowers
5.	Bud	–	changes into flower

Part "B" :

Answer in three of four sentences :

A.1 Different parts of a typical flower are :

i. Sepal

ii. Petals

iii. Stamens

iv. Carpel

A.2 The two functions of roots are :

i. It absorbs water and minerals from the doil.

ii. It holds the plant firmly in the soil.

A.3 On the basis of their life span, plants can be categorised as follows –

Annual Plants : The plants which complete their life cycle in one season. Eg. : wheat, rice etc.

Biennial Plants : The plants which complete their life cycle in two seasons. Eg. radish, carrot etc.

Perennial Plants : The plant like trees of peepal, neem etc. which live for many years are called perennial plants.

A.4 The stems in some plants get changed to perform certain functions. Succulent stem are the stems that store and conserve water in dry conditions. Eg. cactus.

A.5 The process by which the green plants make food with the help of Co_2, water, chlorophyll in the presence of sunlight is called photosynthesis.

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Answer in detail :

B.1 ***Herbs :*** These are very short, soft stemmed, plants having height, less than a metre. They have green and soft stems.

For example : grass, wheat, mustard etc.

Shrubs : These are plants having short but slightly woody stem. Their height reaches between 1 – 3 metres. For example : Rose, Henna etc.

B.2 Differences between annual, biennial and perennial plants :

Annual Plants : Plants which complete their life cycle in one season. They are commonly herbs. Ex. : wheat, rice etc.

Biennial Plants : These are plants which complete their life cycle in two seasons. They are herbs rarely shrubs. Ex. : radish, turnip etc.

Perennial Plants : Plants like trees of neem, mango etc. which live for many years. They are trees. Ex. : mango tree etc.

B.3 Steps for testing the presence of starch in leaves are as follows :

i. Take a potted plant and keep it in sunlight for a day.

ii. After one day, remove one leaf from the plant and boil the leaf in water and then in alcohol.

iii. Pour iodine on the leaf.

iv. It will show blue – black colouration, which shows the presence of starch in the leaf.

B.4 Functions of stem are :

i. It gives support to the plant and conects the root system to all other parts of plant.

ii. It conducts water and mineral salts from roots to all other parts of the plant.

iii. It also transports the food prepared by leaves to different parts of plants.

iv. It bears branches, leaves, flowers, buds and fruits.

v. In some plants it also store food under the ground. Ex. potato, ginger etc.

B.5 The various modifications of roots are :

i. It is modified to store food. For ex. – radish, turnip etc.

ii. It is also modified in some trees to provide extra support to trees like Banyan. Such roots are called prop roots.

iii. Some roots are modified to give mechanical strength and support to the plant. For example : sugar cane, maize. Such roots are called stilt roots.

Chapter 9 : Animals : Form And Function

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Recap Questions

A.1 The cells of the body are organized together to make a tissue to perform a particular function.

A.2 ***Organ :*** A group of several tissues together form an organ to perform a special function. Ex- ear, nose, eyes etc.

Organ System : In multicellular organisms, the organs composed together to form organ system to perform various functions. For ex - Digestive system, Excretory system.

A.3 The movement of various body parts is possible by the skeletal and muscular system.

A.4 Animals usually move about whereas plants are fixed because-

i. Plants are fixed in the soil by their roots not the animals.

ii. Animals move in search of food and shelter but the plants do not.

A.5 The various parts of skeletal system are :

1) Bones

2) Cartilage

Skeletal system is a framework of bones and cartilages which are joined to one another by different kinds of joints.

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Recap Questions

A.1 i. Brain is protected by skull.

ii. Lungs and Heart are protected by Rib - Cage.

iii. Spinal Cord is protected by the backbone.

A.2 The functions of the bones of fox and hind limbs are:

Bones of fore limbs help in the movement of hands and bones of hind limbs help in the movement of legs in walking, sitting and running.

A.3 ***Hip Girdle :*** It is also known as pelvic bone. It is made up of three fused bones to form a strong structure along with the tail end of the back bone. Legs are attached to the two sides in cavities to move in different directions.

A.4 Bones are connected to each other with muscles. Ex. A long upper arm bone which is attached to the shoulder bone.

A.5 If the ribs were fused and immobile then our chest will not be able to go up and down. Every time as we breathe air in and out through the nose and we will not be able to breathe.

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Part "A" :

Answer in one or two words :

D.1 Joint

D.2 Skeleton

D.3 Ball and socket joint

D.4 Snail

D.5 Pivotal joint

Differentiate between the following :

E1. ***Immovable joint :*** The joint at which bones are fixed and there is no movement at all is called immovable joint. Ex- joints of cranium.

Movable joint : The joint at which bones are not fixed and they allows the movement is called movable joint. Ex. - joint at head and neck.

E2. ***Cartilage :***

i. These are thinner, less hard structures which cover some of the bones at the ends.

ii. They provide protection and movement to the bones.

Ligament :

i. Ligaments are the structures present between the two bones.

ii. They only provide movement to the bones.

E3. ***Hinge joints :***

This joint allows movement of the bones joined together only in one plane till 180º.

Example: joint at knee.

Pivotal joints :

This joint allows forward and backward, right and left movement of the bones.

Example : joint between head and neck.

Part "B" :

Answer in details :

A.1 Movement & locomotion is brought about by the different joints of bones in our body. The bones are moved by contraction and relaxation of two sets of muscles.

A.2 Features of a fore limb are :

i. It is a long arm bone which is attached to the shoulder bone.

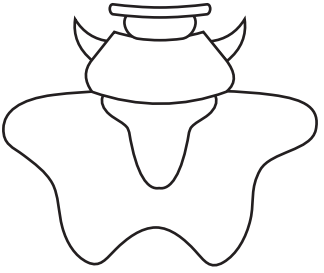
ii. It is connected to two long bones.

iii. These two bones are connected to small wrist bones.

iv. Wrist is connected to palm of the hand having five thin bones.

v. Palm hold fingers and a thumb having still smaller bones.

A.3 Diagram of hip bone



Hip girdle : It is also known as pelvic bone. It is made of three fused bones to form a strong structure along with the tail end of the back bone. Legs are attached to the two sides in cavities and are able to move in different directions.

A.4 A fish move forward when the head of fish moves to one side and the tail to the other side. Suddenly the opposite movements take place and it gives a jerk and push its body forward.

A.5 ***Difference between movement and locomotion is :***

Movement can be in a part of body or in the whole part.

But locomotion is the movement of the organism from one place to another.

Animals move while plants do not because plants are fixed at one place by their roots whereas animals do not.

Chapter 10 : Motion and Measurement of Distances

Page : 142

Recap Questions

A.1 Some ways of traveling in the past are :

i. Logs of wood were converted into the shape of boats.

ii. People also mostly travelled on foot.

iii. Later on, animals pulled the vehicles to carry people and load.

A.2 The invention of steam engine brought drastic changes in transport system as it brought speed to the mode of transport for man and thus helps to save our valuable time.

A.3 Some devices for measuring distances are metre scale, an measuring tape etc.

A.4 Some ways in which body parts were used to measure length of objects are fore arm, foot, foot-steps and hand span.

A.5 S.I. Unit of measurement is metre which is denoted by symbol 'm'.

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Part "A"

D. Give one example of each :

1. Motion of a potter's wheel.
2. A car or bus moving on a straight road.
3. Human heart beat.
4. Motion of a cylinder.

E. Match column :

	A	B
1.	Unit for smaller lengths	Decimeter
2.	State of moving objects	Motion
3.	State of stationery objects	Rest
4.	Moving fan	Circular motion

Part "B" :

Answer in 3 or 4 sentences :

A.1 Three types of motion are

i. Rectilinear motion

Example : March past of parade.

ii. Curvilinear motion

Example : Whirling of a stone tied by a string.

iii. Rotatory motion

Example : Motion of spinning top.

A.2 Two precautions to be taken while using a metre scale are :

i. The scale should be placed in contact with the object to be measured all along its length.

ii. Eyes should be kept in line with the point to be measured.

A.3 The height of person = 1.83m

As 1m = 100cm

So, 1.83 × 100cm = 183 cm

A.4 Measurement can be defined as the method to know about the unknown quantity.

A.5 ***Thickness of a coin can be measured as follows :***

Take a coin and place it between the two blocks on a table.

Place a metre scale touching the coin and the blocks. The reacting should be taken against the inner faces of the blocks. The difference between the two readings will give the diameter of the ball.

Answer in detail :

B.1 To get accuracy in the measurement.

B.2 ***Motion : It is a change of position with time. The***

different kinds of motion are :

i. Translatory motion : Linear motion, circular motion, random motion.

   Ex. : Moving car in straight line is linear motion.

ii. Rotatory Motion

   Ex. Motion of spinning top, Merry-go-round

iii. Oscillatory and vibratory motion

   Ex. : Child swinging on a swing, Motion of piston in engines.

iv. Periodic motion

   Ex. : Movement of moon around the earth, Human heart beat.

v. Rolling Motion :

   Ex. : Motion of a cylinder, Movement of bicycle wheel

B.3 Differences between rectilinear & rotatory motion are :

Rectilinear Motion : It is a type of motion in which an object moves in a straight line. It is also called Linear motion.

For example : A car or a bus moving on a straight road.

Rotatory Motion : It is a type of motion in which an object moves along a circular path about a fixed axis.

For example : Motion of a potter's wheel.

B.4 Motion is a relative phenomenon as the same objects are in a state of rest with respect to one point, may be in a state of motion with respect to the other.

So, motion is regarded as a relative phenomenon.

B.5 ***An activity to measure a circular object is as follows :***

Take a small ball whose diameter is unknown. Put this ball between two blocks on a table place a metre scale touching the ball and the blocks. The reading should be taken against the inner surfaces of the blocks. The difference between the two readings will give the diameter of the ball.

Chapter 11 : Light, Shadow and Reflection

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Recap Questions

A.1 Opaque objects : stone, wood, hardboard etc.

Translucent objects : Butter paper, polythene, frosted glass etc.

Transparent objects : glass, water, cellophane paper etc.

A.2 ***Shadows :*** These are the dark areas which are formed as the light is not able to pass through the opaque objects at that area.

A.3 We are able to see the things when light rays reflected from the things fall on our eyes.

A.4 We can say that shadows match the shape of objects because shadow of that particular object is formed only when it comes in the path of light. So, the shadow form matches the shape of object.

A.5 ***Umbra :*** When an opaque object comes in between a point source and the screen, a dark shadow with sharp edges is formed on the screen. This dark shadow is called the umbra.

Penumbra : If the source of light is broader and bigger the shadow umbra will have another hazy shadow around it. It is called penumbra.

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Part "A" :

D. Give two examples :

1. Luminous bodies : Sun, Stars
2. Non luminous bodies : Moon, Earth
3. Opaque objects : Wall, Wooden table
4. Translucent objects : butter paper, cellophane tape

Part "B" :

Answer in 3 or 4 sentences :

A.1 ***Reflection of light :*** The process of bouncing back of light rays after striking from a surface is called reflection of light.

A.2 Three functions of light are :

i. It enables us to see.

ii. It brings about a chemical change on a photographic film.

iii. Special beam of light are used to cut steel.

A.3 Mirrors are smooth, polished surfaces which reflect the light.

Clear images are formed when the light rays fall on a plane mirror.

A.4 Rainbow is formed after the rain, when sun shines due to refraction of light through the suspended water droplets in the sky.

A.5 Moon is a non-luminous body but it shins at night because it reflects the light of sun falling on it.

A.6 We are able to see different things only when light rays after reflecting from different thing reaches to our eyes.

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Answer in detail :

B.1 Various functions of light energy are :

i. It enables us to see.

ii. It brings about a chemical change on photographic film.

iii. Solar energy helps green plants to make food by photosynthesis.

iv. Solar energy is converted into electric energy in solar cells.

v. Special beams of light are utilized to cut steel.

vi. Artificial light is used in various forms for our comfort.

B.2 Shadows are formed when an opaque object comes in the path of light. It can be shown by a simple activity :

Hold a few objects like an alarm clock, a toy, or a ball one by one in hand in a dark room.

Now throw the light of a torch from behind on a wall passing through the object on the wall. We can see the shadows of the objects that we hold in our hands on the wall.

B.3 The size of the shadow keep changing with the time of the day can be proved as follows :

Take a stick and fix it on the ground perpendicular.

Keep marking the shadow on the ground till sunset, after

interval of 2 or 3 hours till sunset note the direction and length of each marking.

It is observed that the shadows are formed in the direction opposite with respect to sun and their length and size keep changing length and size keep changing with respect to sun.

B.4 To justify the statement that plane mirrors are good reflectors of light, the activity is as follows :

Place a plane mirror in front of a lighted candle. We will see the image of candle in the mirror which appears to be placed behind the mirror. It is due to reflection of light.

B.5 Construction of working a pinhole camera :

It involves the following steps :

i. Take a cardboard box. Make a pinhole on one of its smaller face and fix a translucent glass or waxed paper screen at the back.

ii. When the pinhole of the camera faces bright objects their image is formed on the screen. The image formed is real and inverted.

Construction and working of a pin hole camera is based on the principle of rectilinear propagation of light.

Chapter 12 : Electricity and Circuits

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Recap Questions

A.1 Electricity has great utility in our day-to-day life to make our work easier and faster.

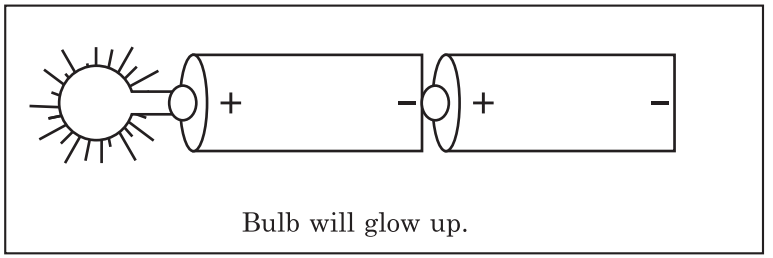
It is used to operate pumps, to lift water, make us work in late nights, light up homes, offices, market, roads, railway station, airports after sunset.

A.2 Allessandro volta was an Italian Scientist who invented the volta cells. So, such cells are named volta cells.

Dry Cell : The battery cell is called dry cell which acts as source of electricity and produces direct current. Its principle of working is based on volta cell.

A.3 Battery is a combination of two or more cells in series to provide electricity and generate direct current (DC).

Diagram to show how battery can light a torch bulb :



Bulb will glow up.

A.4 Solar cell is a device which converts solar energy into electrical energy. It is used in remote areas, to produce electricity for operating water pumps and street lights.

A.5 Full forms of AC is Alternating current & DC is Direct Current. The current in AC form, reaches our homes.

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Part "A"

D: Answer in one word :

1. Electric bulb
2. Battery
3. Solar cell
4. Dry cell
5. Switch
6. Insulators

Part "B"

Give reasons :

A.1 Electric wires are made of copper because copper is a good conductor of electricity.

A.2 Electric wires have plastic coating because plastic covering acts as an insulating covering to avoid the chance of electric shock.

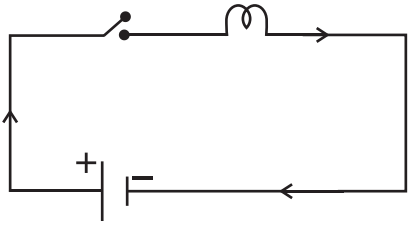
A.3 A fused bulb does not glow because its filament gets broken due to which circuit does not complete.

A.4 Electrical appliances and tools have their handles covered with insulating material so that to avoid a risk of getting on electrical shock while working with these appliances.

Answer in detail :

B.1 When the current passes from the positive terminal (+) of the cell to the negative terminal (–) of the cell, it is called closed circuit.

Closed circuit can be made as shown :



Connect the positive terminal of cell to one terminal of bulb and connect the other terminal of bulb through wire to a key, which is connected to negative terminal of cell. When the key is in switch 'ON' position, the bulb will glow and when it is in switch 'OFF' position the bulb will not glow.

Working of different components in circuit are :

i. Bulb : Glowing of bulb shows the passing of electricity

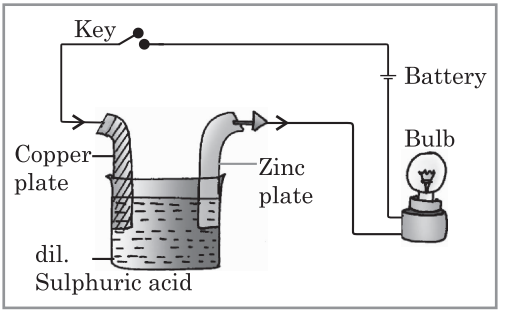
ii. Cell : Provides electricity to glow the bulb.

iii. Wire : It connects the two terminals of cell to bulb and key.

iv. Key : It helps to complete or break the circuit when in switch 'ON' or 'OFF' position.

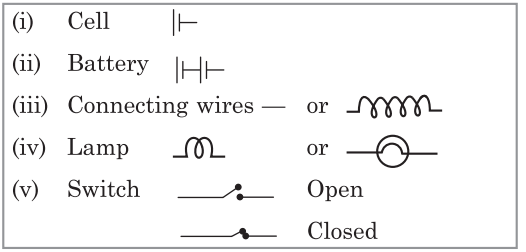
B.2 The Volta cell was invented by an Italian scientist, Allessandra Volta, thus such cells are named Volta cells.

Arranged and working of simple Volta cell: Place a solution of dilute sulphonic acid in a beaker. Place a zinc plate and a copper plate dipping in the acid. Connect the metal plates to two ends of the battery cells. We will observe that the bulb glows.



B.3 Circuit diagram represents an electric circuit using symbols for its various components.

Some symbols of various components of an electric circuit are :



B.4 A switch is a device which is used to break or complete the electric circuits.

An activity to show the making of a simple switch :

Things required : A thermocol sheet, two thumb pins, two wires, a cell and a safety pen or paper clip.

Method

i. Fix one thumb-pin holding one end of the safety pin on the thermocol sheet.

ii. Now, fix the other thumb pin a little far away from the first one on the sheet of thermocol in such a way that the safety pin can touch both the thumb pins.

iii. Then, attach wires with both the pins and connect with the two terminals of the cells. Place a bulb in the circuit.

iv. When the safety pin touches both the thumb pins, the bulb will glow and when we move it away from the free thumb pin, bulb does not glow.

B.5 ***Construction & working of a dry cell***

The principle of working of a dry cell is based on that of volta cell. It acts as a source of electricity and generate Direct Current (DC).

Construction of a dry cell :

It consists of an outer covering made up of zinc. It has a carbon rod having a brass cap in the centre of a container. The carbon rod is surrounded by a mixture of manganese dioxide (MnO2) and powdered charcoal. Thick paste of

ammonium chloride is filled in the remaining space. The cell is sealed at the top with pitch. The whole of the cell is covered by a card-board cover.

The carbon rod acts as positive (+) terminal and zinc container as the negative (–) terminal. When electric circuit passes the electricity starts flowing from carbon electrode to zinc electrode.

Chapter 13 : Fun with Magnets

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Recap Questions

A.1 Some magnetic materials are : Iron, nickel, cobalt etc.

Some non magnetic materials are : paper, wood, thermocol, plastic etc.

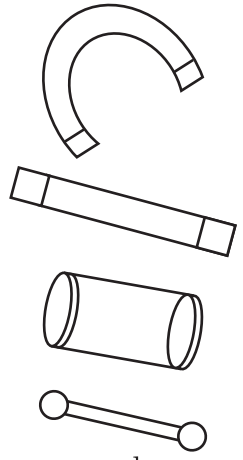
A.2 There are mainly four kinds of shapes of magnets. These are :

i. Horse shoe magnet

ii. Bar Magnet

iii. Cylindrical Magnet

iv. Rod Shape Magnet



A.3 Difference between temporary and permanent magnet is : Permanent magnets do not lose their power of magnetism if kept safely.

But temporary magnets have magnetic property for a while, otherwise they are simple iron pieces.

A.4 Composition of an ordinary magnet :

An ordinary permanent magnet are made up of alloys containing iron, aluminium, cobalt and alloys of steel with nickel.

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Part "A"

D. Distinguish between :

D.1 ***Magnetic material :*** The materials which attract iron are called magnetic materials.

Eg. : iron fillings

Non-magnetic material : The materials which do not attract iron are called non- magnetic materials

Eg : charcoal powder

D.2 ***Artificial Magnets :*** The magnets which are made by man in factories and laboratories and called artificial magnets.

They can be permanent or temporary.

Natural magnets : The magnets which are found naturally in nature are called natural magnets.

They are always permanent.

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E. Match columns :

	A	B
1)	Mariner's Compass	To find direction
2)	Artificial Magnet	Electromagnets
3)	Unlike poles	Attract
4)	Like poles	repel
5)	Nonmagnetic material	Plastic
6)	Magnetic material	Steel

Part "B" :

Answer in detail :

A.1 The story of discovery of magnet is as follows :

A shepherd named 'Magnes' in early 800 B.C. in an ancient Greece used to take his herd of sheep and goats for grazing with a stick having an iron piece at one end. Once his stick got attracted towards a rock. It was said that this rock had a force of attraction towards iron materials and later it was called "Magnetite" on the name of its discoverer 'Magnes' or a place where it was first discovered called as Magnesia.

A.2 ***Magnetic Substances :*** These are those substances which attract iron. For ex : Nickel, cobalt etc.

Non magnetic substances : These are those substances which do not attract iron. For ex.— paper, wood, thermocol etc.

A.3 We can show something is magnetic in nature by bringing a magnet near it. If the material is magnetic it will attract towards the magnet and if do not, it will not be attracted by the magnet.

A.4 We can make a magnet in the laboratory as follows -

Take a rectangular piece of iron on a table. Now, take a bar magnet and place it on one of the ends of the iron piece. Rub it along the length of it without lifting the magnet till we reach the other end. Lift the magnet as we reach the end and bring the same side we started with to the place of the bar of iron where we began rubbing. Repeat this activity 30-40 times. We will observe the pins or iron fillings are attracted by the iron piece which has been rubbed.

Now, the iron bar has been converted into a temporary magnet.

A.5 Repulsion is a sure test of magnetism as the like poles repel each other whereas unlike poles attract each other. Each magnet has property of attraction and repulsion. When we brought similar poles of suspended magnet and other magnet near, they show repulsion but when we brought different poles of these two magnets they show attraction.

A.6 Precautionary measures for the safety of the magnets are :

i. The bar magnets should be placed in pairs with their unlike poles on the same time.

ii. Soft iron should be placed across their ends and the two magnets be separated by a piece of wood.

iii. Do not keep magnets near cassettes, televisions, mobiles, CDs, music system etc.

Model Test Paper – 1
Part "A"

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A. Multiple Choice Question :

i. (c)
ii. (d)
iii. (b)
iv. (a)
v. (d)

B. Fill up the blanks :

i. Magnetic
ii. Jute
iii. Chemical
iv. Deficiency diseases
v. seeds

C. One word answer :

i. Milk
ii. Butter
iii. Chemical
iv. Wool
v. Glass

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D. Match column A with column B :

	A		B
i.	Carbohydrates	:	starch
ii.	Natural fibre	:	wool
iii.	Opaque	:	wood
iv.	Milk preservation	:	pasteurization
v.	Body building	:	proteins

Part "B"

A. Very short answer type questions :

1. It provides energy for the proper functioning of body.
2. Carbohydrate rich diet is suitable for an athlete.
3. Under nutrition

4. Sarson ka saag and Makke ki roti
5. Dried legumes are rich source of vitamin B.
6. It is a fast change.
7. To test which substance is present in a mixture or compound, things are heated in laboratory.
8. Cotton
9. Cotton balls
10. Protein

B. Short answer type questions

11 ***Herbivores :*** The organisms which feed on green plants only are called as Herbivores. For ex. rabbit, goat, cow etc.

Carnivore : The animals which feed upon the flesh of other animals are called carnivores. For ex : Lion, tiger, snake etc.

Omnivores : The organisms which feed upon both plants and animals are called omnivores. For ex : dog, beer, cat, crow, man etc.

12 Dairy products are the milk and milk products which are made from the milk. Ex : ghee, butter, cheese etc.

13 People living in coastal areas eat fish-dishes and other sea foods to a great extent as they are protein and iodine rich foods.

14 Water plays an important role in our body as :

i. It maintains internal environment and regulates temperature.

ii. Transportation of nutrients and excretion of waste materials also depends upon water.

iii. Body can suffer dehydration in body in scarcity of water.

15 Ex. of Reversible change :

Water can be converted into ice by cooling to 0°C and be warmed to get back liquid state again.

Ex. of irreversible change :

Burning of crackers give rise to ash. This ash cannot get back to crackers again.

16 Different dress materials have varying degrees of qualities according to which they are utilized to make articles of use. For ex.– cotton clothes are preferred to wear while doing work in a kitchen as they burn slowly.

C. Long Answer type questions :

17

	Name	***Plant part used***	***Nutrient value***
i.	Carrot	Root	Minerals, vitamins,
ii.	Cauliflower	Herbage	Minerals, vitamins
iii.	Banana	Ripened ovary	Carbohydrate
iv.	Mustard	Seeds	Carbohydrates
v.	Sugar	(sugarcane) Stem	Carbohydrates
vi.	Coffee	Seeds	Stimulants

18 A balanced diet is a diet having all the essential nutrients of food in required amount.

Its significance : It plays an important role in proper growth and development of body as it contains all the essential nutrients of food in required amount.

19 The term "Pasteurization" is based on the name of a microbiologist Louis Pasteur who for the first time found that useful and harmful bacteria exist in our surrounding.

This process developed by him to prevent the spoilage of milk, in which milk is heated to high temperature and then cooled suddenly.

20 *Fabric :* Cotton

Kind of texture : Rough

Absorbility : High

Eeffect of heating : Burn slowly

Woven structure : Porous, uneven

Fabric : Silk

Kind of texture : Very smooth

Absorbility : Moderate

Effect of heating : Burn faster than cotton

Woven structure : Fine, even

Fabric : Nylon

Kind of texture : Smooth

Absorbility : Least

Effect of heating : Burn very fast

Woven structure : Fine, non-porous even

21 Roughage is fibrous, indigestible part mainly comprising of cellulose of our food.

It is important in our diet due to following reasons :

i. It helps in easy bowl movement.

ii. It prevents constipation.

iii. It adds bulk to food and keep body healthy.

iv. It satisfies thirst and sense of having full meals.

22 Qualities of silk material are :

i. It is a natural fibre, we get, from cocoons of silk moth.

ii. It is an expensive fabric material.

iii. It is used in making silk sarees other dresses and articles.

iv. It is also mixed with other fibres to make varieties of cloth materials.

D. Very long answer type questions

23 Changes can take place by applying pressure : In our day to day life, there are so many changes which are brought about by applying pressure. These changes may be physical or may be chemical.

Some of the ex. are :

i. Metals are beaten into sheets by applying pressure.

ii. Volcanoes burst due to heat and pressure.

iii. By striking the head of the matchstick on the coated side of the match box, it catches fire causing chemical change.

Thus, the above examples show that changes are brought about by applying pressure.

24 Applications of cotton, jute and silk fibres are :

Cotton

i. It provides chess material in pure form or mixed with other fibres.

ii. In tailoring and stitching the cotton threads are used.

iii. Sterilized cotton is used for medical purposes.

iv. Quilts, pillows, cushions etc. are made from cotton as upholstery.

v. Many kinds of dusters, mops and wiping materials are made with cotton.

Jute

i. It is used for making ropes, carpets, gunny bags and foot wears.

ii. It is also used for making jute dress material which is a new concept in fashion industry.

Silk

i. It is most popularly used in making of silk sarees and other dress and articles.

ii. It is also mixed with other fibres to make varieties of cloth material.

Model Test Paper – II
Part "A"

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A. Multiple Choice Question :

1. b
2. c
3. d
4. c

B. Fill in the blanks :

1. like
2. lungs
3. insectivorous
4. X-ray
5. Physiological

C. Match column A with column A :

	A		B
1.	Streamlined body	-	fish
2.	Spinning top	-	rotatory motion
3.	Water and Chalk	-	heterogeneous mixture
4.	Insectivorous plant	-	venus flytrap
5.	Green plants	-	autotrophs

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D. Answer in one word only :

1. Common salt
2. Rolling motion
4. Excretion
5. 206 Bones

Part "B"

A. Very short answer type questions :

1 Plastic, Wood, metal, paper, clay etc.

2 The stainless utensils do not get rushed.

3 Yes, we can separate iron fillings from a mixture of sand and iron filling by using a bar magnet because iron fillings are magnetic in nature will stick to the bar magnet.

4 Iodine, Camphor

5 This method is used to separate insoluble solid substance from a liquid.

6 Living things differ in shape, size weight and their life styles. They may also differ in their living systems.

7 Reproduction : It is the process by which all living things produce young ones of their own kind

8 Roots fix the plants in the soil and absorb water and minerals from the soil.

9 The collection and pasting of dried plants and their parts in a scrap book is known as Herbarium file.

10 Muscles and bones are the structures which help in body movements.

B. Short answer types Questions :

11 The appearance of different solids should appeal to our senses to recognizing them differently. Like gold is yellow in colour while diamond is transparent and charcoal is black in colour.

12

Material	**Hustre**	**Hardness**	**Uses**
Plywood	no hustre	less hard	covering of firniture
Chalk	no hustre	hard	for writing in blackboard.
Plastic	no hustre	flexible	in making containers bottles etc.

13 Sieving : It is a simple method of separation, by which coarse unwanted chaff is separated from the wheat flour. The bigger chaff remains in the sieve and only finer flour comes out through them.

Substance of different sizes are separated by this method.

14 In a slide of onion-peel, under the microscope, we see the rectangular cells arranged end to end.

15 All living things have mass as they all are formed of matter which occupy space. They all show various metabolic activities. They are also felt by our senses.

16 ***Storage stem :*** Stems in some plants get modified to store food. These stems are called storage stems. For ex : stems of potato, ginger etc. store food under the ground.

Succulent stems : These are the stems, which store and conserve water in dry condition. For ex : cactus

C. Long answer type questions :

17 Development of cotton :

Father of Nation, Mahatma Gandhi revolted against the wearing of foreign made clothes and encouraged hand woven 'khadi' or cotton using charkha and takli. 'Khadi Gram Udyog' is one of the oldest of government establishments which is world wide popular for its pure and fine cottons.

18 An activity to demonstrate that matter occupies space is as follows :

Take pan balance and put air filled football on one of the pans and deflated football on the other. We will observe that the pan with air filled football moves down a little as compared with the one having deflated football.

This shows that air has mass and occupies space which is a kind of matter.

19 ***Centrifugation :***

It is a method in which a centrifuge machine is rotated at very high speed to separate mixture containing suspended particles.

This method is employed to separate heavier particles from the lighther ones. For ex : butter can be obtained from curd by this method.

20 When a bright light is suddenly flashed into our eyes, we will suddenly close our eyes. This is due to reflex action.

21 Stem conducts water upwards can be shown as follows : Take two obliquely cut twigs of flowering plants with a flower on each twig. Put them in separate beakers. Put plain water in one beaker and coloured water in other beaker. Label the beakers A with plain water and beaker

B with coloured water. Leave the set up overnight. The twig with the flower in beaker B turned coloured but the in 'A' remained the same. This shows that stem conducts water upwards.

22. ***Gliding Joint :*** It is a type of joint, that brings gliding movement of the joint due to gliding nature of cartilages over the bones.

For example : Joint between vertebral of back bone.

Hinge Joint : It is a type of joint that allows movement of the bones joined together only in one plane till 180º.

Knee joint is an example of hinge joint.

D. Very long answer type questions :

23 Definite life span in living organisms means that different living organisms live for a fixed time period, it is called life span. All living things are born and ultimately die. All life start from a single cell which multiplies in multicellular organism to produce a living creature and after a definite life span dies.

For ex : Mouse has an average life span of 2-3 years where as dog has 16-18 years average life span.

Different living organisms have different life spans, but definite life span.

24 Characteristics of snakes are :

i. It is a land animal, but some snakes may swim.

ii. It has many vertebral connected to thin muscles and skin.

iii. The loops of the body gives the body a forward push. It moves very fast.

Characteristics of Cockroaches are :

i. It is an insect. It can walk and climb and may fly to a little distance.

ii. Its body is divided into three segments : head, thorax and abdomen.

iii. There are three pairs of legs for walking.

iv. Two pairs of wings are attached to breast.

v. It has an outer skeleton known as Exoskeleton.

vi. Muscles of leg help in walking and the breast muscles move the wing for flying.

Characteristics of snail are :

i. It has no bones and back bones.
ii. It has a thick muscular foot and a head.
iii. Its body is covered by a hard shell. The head and foot come out through a hole in the shell.
iv. Shell provides protection to its body.
v. It moves very slowly.

Characteristics of earthworm are :

i. It has no skeleton and its body is long, cylindrical and slimy to touch.
ii. Its body is totally muscular.
iii. The body is made up of ring like segments.
iv. On the lower surface of body curved structure known as bristles are present.
v. These bristles help in movement of the body.
vi. It lives in soil. They eat their way through the soil and excrete out the undigested food in the soil in the form of castings.

Model Test Paper - III
Part "A"

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A. Multiple Choice Question :

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

B. Fill in the blanks :

1. lasers
2. switch
3. non-magnetic
4. permanent
5. Light

C. Match column A with column B

A		B
1. Sun	-	Natural luminous body
2. Insulator	-	Clothes
3. E-bulb	-	Artificial luminous body
4. Magnetic Compass	-	To know about the directions
5. Light	-	Rectilinear propagation

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D. Answer in one word :

1. Wood
2. Bakelite
3. Knife
4. Real image
5. Hydroelectric plant

Part "B"

A. Very short answer type questions :

1 In the past, slow pace vehicles like cycles, boats were only the modes of transport but now fast pace vehicles like aeroplanes are used.

2 1 Kilometre = 1000 meter

Or 1 km = 1000m

3 When an object keeps changing direction in a disorderly or in random manner, it is said to be in random motion. Ex : A player running after a ball.

4 Light is a form of energy that enables us to se the different objects.

5 Images are found by smooth reflecting surfaces.

6 From water, we derived hydroelectric energy and from coal we derived "Thermal Power Energy"

7 Due to the breakage of filament, the electric circuit will not be completed and the fuse bulb will not glow.

8 Special cells stick to iron surfaces because they are magnetic in nature.

9 The direction of entrance are different in different houses.

10 The two ways by which a magnet may lose its magnetic powers are :

i. By hammering and heating

ii. By dropping of magnet from height

B. Short answer type questions :

11 Some examples where there is need for measuring things and accuracy is not required are :

i. To measure smaller distances white playing 'gilli' and 'danda'.

ii. Sometimes we use materials like thread rope, rods etc. to measure field space roughly.

12 Some objects in motion around us are - Moving fan, Hands of clock, Motion of pendulum of clock etc.

Some objects at rest around us are :

Furniture of house, utensils in kitchen, Electrical appliances like T.V. etc.

13 No, we will not be able to see in the dark because it is only the light which when reflected from the objects reaches our eyes then only we are able to see things.

14 A dark shadow with sharp edges called "Umbra" will be formed on the screen.

15 If live wires are not covered by insulating material there may be a short circuit or we may get an electric shock by touching them.

16 By watching the direction of sun rise we can roughly found the direction in the morning time. As we know sun rises in east direction, so opposite to east, the direction will be west and left to east, the direction will be North and opposite to North, it will be South.

C. Long answer type questions :

17 ***Oscillatory Motion :*** The kind of motion in which an object moves to and fro in a regular manner along the same path, it is said to be in Oscillatory Motion. Some examples are :

i. Motion of piston in engines

ii. Child swinging on a swing.

iii. Motion of pendulum of wall clock.

Vibratory motion : Small and very rapid oscillations form vibratory motion. Some ex. are :

i. Sounds of musical instruments like guitar, sitar etc.

ii. Metals are sonorous as they produce sound when pulled.

18 An activity to demonstrate the formation of umbra & penumbra is as follow :

If the source of light is broader and bigger and shadow umbra will have another lazy shadow around it called penumbra.

Take a torch and let light from a torch fall on a white screen having a ball in between. We will see a shadow formed on the screen having two parts. The initial darker part is surrounded by lighter region - penumbra and the central darker part is umbra.

As the distance between the object and the screen become bigger, the penumbra goes on increasing in size.

19 We can check the arrangement of cells in a torch by the bulb of torch. If the arrangement of two cells are in series i.e. (+) terminal of one cell is connected to (–) terminal of another cell, then the bulb will glow and if not, then the bulb will not glow.

20 ***Conductors :*** Materials that allow electric current to pass through them are called conductors. For ex : copper aluminum etc.

Insulators : Materials that do not allow electric current to pass through them are called insulators. For ex : cloth, plastic, wood, paper etc.

21 An activity to show that like poles of the magnet repel each other while its unlike poles attract each other is as follow :

Take one bar magnet and suspend it freely to the arm of a wooden stand with the help of a string. Bar magnets are marked north and south poles as N & S. Now, bring another magnet near the north pole of the suspended magnet. We will observe that the north poles of the suspended magnet moves away. Now, bring the south poles of this magnet near the north poles of suspended magnet. The north pole of suspended magnet gets attracted towards the south pole of the other magnet.

This shows that like poles repels each other where as unlike poles shows attraction.

22. The magnetic effect can pass through screen can be demonstrated as follow :

Take some iron fillings and spread them on a sheet of card sheet or plywood sheet which is held on four wooden blocks. Place a bar magnet under the board in the centre. We will observe that the iron filings arrange themselves in a particular pattern on the sheet having maximum number attacked near the poles.

This shows that magnetic effect can pass through screen which should be non-magnetic in nature.

D. Very long answer type questions :

23. Rectilinear propagation of light is an important property of light which shows that light travels in a straight line. The rays of light never bend.

It can be demonstrated by an experiment as follows :

Take two number or plastic pipes. One is straight pipe and another is a bent pipe. Place a lighted candle on a flat surface. Try to peep through one end of the straight pipe by placing the other end near the flame of the candle. We will be able to see the flame clearly because the pipe is straight. Now, use a bent pipe and repeat the activity.

We will not be able to see the flame of candle because our eye and the flame are not in straight line.

This proves that the rays of light coming from the lighted candle traveling to our eyes in a straight line.

24. A mariner compass is a device used to find out the directions by the sailors of the ship. It has a magnetic needle which comes to rest in North - South direction due to attraction and repulsion with earth's respective magnetic field.

We can make our own compass as follows : Take a cork or thermacol and insert a magnetize needle horizontally into it. We can magnetize the needle using a bar magnet. Put the cork in a small tub full of water so that it floats without the needle touching the water. Rotate the cork slightly touching in different directions. Let it come to rest. We will find it will always point towards North-South Direction.