

CHRIST KING HR. SEC. SCHOOL, KOHIMA
CLASS -7
SUBJECT – SCIENCE (1st Term 2020)

Unit – 1: Food

Chapter-1: Nutrition in plants: Everything – Completed

Chapter-2: Nutrition in animals

(A) – I, II, III, IV - Completed

(B) Short type questions – (I)

1. Name the organs used by hydra and frog for ingestion of food.

Ans- A hydra uses its tentacle and a frog uses its sticky tongue for ingestion of food.

2. What is an enzyme?

Ans- A juice secreted from our body mainly to help carry out the digestion process is called an enzyme.

3. Name the organs which comprise the human digestive system.

Ans- The organs which comprise of the human digestive system are mouth, teeth, oesophagus, stomach, duodenum and small intestine.

4. Name the structures which help in the absorption of food in small intestine.

Ans- The semi-liquid food goes to the 20 feet long coiled tube called the ileum. Digestion of food gets completed here. Nutrients present in the digestive food are then absorbed by the finger-like projections called Villi, on the inner surface of the small intestine.

5. Why is the digestive system important in humans?

Ans- Food, on its own, is not in a form where our body can use it. Food needs to be broken down into small molecules of nutrients for the body to be able to absorb it. The digestive system processes food into useable nutrients and distributes them into the blood stream to go to different parts of the body.

6. Which are the two sets of teeth in adult?

Ans: The two sets of teeth found in adult are: (i) Wisdom teeth (ii) Permanent teeth

7. Name the digestive glands in the human digestive system and mention their secretions.

Ans: (i) Salivary glands – salivary amylase

(ii) Gastric glands – pepsin

(iii) Pancreas – Trypsin, Lipase, amylase.

(iv) Intestinal glands – Maltase, Lactase, Sucrose

(v) Bile juice from liver – Bile salts

(C) Short Type Questions – 11:

1. What are the various disorders in the process of digestion?

Ans- The various disorders in the process of digestion are:

(i) Irregular food habit

(ii) Not chewing the food properly

(iii) Not having enough roughage in diet

2. What is meant by assimilation of food?

Ans- The process of absorbing nutrients into the body after digestion is assimilation of food.

3. What is the process of egestion?

Ans- The process by which the undigested food particles are thrown out of the body is called egestion.

4. What is the role of teeth, enzyme and saliva in digestion?

Ans- (i) Teeth help us to tear the food into small pieces before it enters the stomach.

(ii) Enzyme act as starch present in the food and changes it into sugar

(iii) Saliva is a water like secretion from salivary gland present in the mouth, which contains an enzyme, called amylase in it.

5. How does ingestion take place in paramecium?

Ans- Paramecium has several small hair – like structures, called Cilia in its cytostome or mouth. These structures direct the food particles towards the cytostome. The movements of the Cilia push the small food particles into its mouth or cytostome and this is how ingestion takes place in paramecium.

6. Describe the digestion of food in the small intestine.

Ans- When the food reach our stomach, it mixes up with pancreatic juice which contains several enzymes, segregated by pancreas, the juncture of stomach and small intestine. The liver then secretes bile juice, which bile juice helps to digest fats in our diet. The process of digestion concludes in the small intestine.

7. What is the function of the large intestine in the human digestive system?

Ans- The water in the undigested food is absorbed by the walls of the large intestine. The remaining undigested and unabsorbed food is stored in the rectum and is passed out from the body through anus as faeces.

8. What is the role played by the liver in the digestion of food?

Ans- Liver plays an active role in the digestion of food. It secretes enzyme which help in the digestion of food. The enzyme secreted by the liver is called bile juice.

9. How does digested food finally reach the blood stream?

Ans- When the process of digestion ends, the absorbed nutrients are passed on by the blood capillaries to be carried out by the blood to the cells of the body. This is how the digested food finally reaches the blood stream.

(D) Long Type Questions:

1. List the difference digestive enzymes secreted in the small intestine and state their functions.

Ans- The various digestive enzymes secreted by small intestine are:

- (i) Trypsin – Its function is to produce peptides
- (ii) Lipase – Its function is to produce fatty acids and glycerol
- (iii) Amylase – Its function is to produce maltose
- (iv) Maltase – Its function is to produce glucose
- (v) Lactase – Its function is to produce glucose and other simple sugar
- (vi) Sucrase – Its function is to produce glucose and other simple sugar
- (vii) Bile salts – Their function is to produce lipid droplets

2. Outline the process of nutrients in human body with the help of a flow chart.

Ans- The answer of a flow chart is in your text book on page – 27.

Absorption in the large intestine. The absorbed nutrients are carried by; copy down a flow chart from here start with

Food Ingestion mouth - - - -

3. How will you show that saliva contains an enzyme to digest starch?

Ans- When we chew the food, it breaks into smaller particles. The food then changes into semi solid form and gets mixed up with saliva, the juice produced by the salivary glands present in the mouth. The salivary glands start secreting saliva even before the food enters the mouth. An enzyme, called amylase, is present in saliva which acts on starch present in the food and changes it into sugar. Thus we can say that saliva contains an enzyme to digest starch.

4. How does digestion take place in a ruminant?

Ans- The digestive system of a ruminant is not same as humans. A ruminant has four chambers in its stomach, namely rumen, reticulums, omasum and abomasums. After eating, the food goes into the first stomach, called rumen. Here, most of the digestion takes place. The food then goes to the second chambers, reticulum, where it is converted into pulp and returned from here to the mouth for chewing the cud. After this process, the ruminant reswallow the food, which then passes to the second portion of the stomach. Then the digestion of food start in the other two chambers. The food material pass through the intestines and their undigested things are passed off as waste material.

Unit -2: Materials

Chapter – 3 : Fibre to Fabric

(B) Short Type Question. (I)

1. What are fibres?

Ans- Fibres are then elongated stringy natural, man-made or manufactured filaments used to make clothes.

2. State the two main kinds of fibres.

Ans- The two main kinds of fibres are (i) Natural fibres

(ii) Synthetic or man-made fibres

3. Name some source of natural fibres.

Ans- Silk, cotton, jute, hemp, linen, wool.

4. Name some animals that yield wool.

Ans- Some animals that yield wool are Alpaca, Llama, Camel, Angora rabbit, Angora goat and sheep.

5. Which animal is mostly used to obtained wool?

Ans- The animal that is mostly used to obtain wool is Sheep.

6. What is Sericulture?

Ans- The process of rearing silk worms for the production of raw silk is called Sericulture.

7. What is Cocoon?

Ans- Cocoon is a kind of silky envelop spun by the larvac of many insects to protect pupas from spiders and to protect eggs.

(C) Short Type Questions – (II)

1. What is shearing? How is it done during production of wool?

Ans- The process of removing of coat by cutting off closely from a sheep's body is called shearing.

During the production of wool, shearing is done with the help of very sharp blades that are run close to the skin of the sheep to removed the coat of wool.

2. Why are Cocoons boiled?

Ans- Cocoons are boiled in hot water to kill the worms and loosen the filaments, which also lets the cocoons float freely. The filaments from several cocoons are then reeled off together to make strong threads.

3. Why did the Chinese hid the technique of producing silk from the outside world?

Ans- The technique and process of sericulture were guarded secrets and closely controlled by chinese authorities in order to keep their monopoly on silk production.

4. What is reeled silk?

Ans- After a silkworm matures into an adult moth, it comes out of the cocoon by making a hole into it. This cuts the spiral shaped cocoons into small pieces which becomes useless for fibre making. The complete tread obtained from an intact cocoon, yields the best quality silk, called reeled silk.

5. What is raw silk?

Ans- The small pieces from the broken cocoons are processed further to get a single long thread of lower quality is called raw silk.

6. State the health problems of workers in silk industries.

Ans- The workers in silk industries suffers from different health problems. They suffer mainly from skin disease, various respiratory disease, asthma, common cold, cough, muscular pain, headache, bodyache, etc.

(D) Long Type Question:

1. Write an essay on animals yielding fibres for clothing.

Ans- Animal fibres are natural fibres that consist largely of particular proteins. Instances are silk, hair/fur and feathers. Not all animals fibres have the same properties, and even within a species the fibre is not consistent with animal fibres, and natural fibres in general, the individual fibres look different, whereas all synthetic fibres look the same.

2. State the different steps in the production of wool.

Ans- The process of producing wool involves a few critical steps, like shearing, sorting, combing, cleaning and scouring, carding and spanning before the wool can be turned into

fabric. Shearing is the first step in wool production which relates to the removing of the coat of wool from the sheep's body. Sorting, also called grading, is the second step, in which the wool is divided into sections and graded by quality. Combing is the next step in which the wool is combed to pull the fibres into alignment and to remove chunks of materials which might catch into it. To remove the contaminants, the wool is then scoured in a series of alkaline baths containing water, soap and soda ash or a similar alkali. After that, the fleece is carded and passed through a series of metal teeth that straighten and blend the threads into silver. Finally, the silver is spun into thread or yarn for weaving, crocheting or knitting.

Chapter – 4 : Heat

(A)(I)(II) in the textbook.

(B) Short Type Questions.(I)

1. Define energy.

Ans- Energy is the ability to do work.

2. Give an example where heat is converted into sound and light energy.

Ans- The bursting of a fire cracker is an example of heat converted into sound energy; and the emitting of light when charcoal is heated is an example of heat converted into light energy.

3. Which of the following will expand the most when heated – iron, water , zinc or oxygen?

Ans- Iron

4. What is temperature?

Ans- Temperature is a measure of the amount of heat energy possessed by an object.

5. Which of the following is suitable to measure the temperature of different objects – solids, liquids, gases.

Ans- Liquids and gases are suitable to measure the temperature of different objects.

6. Write the temperature of a normal human body degree Celsius.

Ans- The temperature of a normal human body in degree Celsius is 37°C

7. Why is mercury used as the fluid in thermometers?

Ans- When the temperature rises, mercury can easily pass through the small constriction in the thermometer and record the temperature. That is why mercury is used as a fluid in thermometers.

8. Define Calorie.

Ans- Calorie is the unit of measuring the amount of heat.

9. What is Joule?

Ans- Joule is the internationally accepted unit of heat energy.

10. If we supply 4.184 J of heat to 1g of water, how much rise would be there in temperature?

Ans- The temperature rise would be 1°C .

(C) Short Type Question-(II)

1. Give five examples of effects of heat in our daily life.

Ans- Five example of effects of heat in our daily life are;

(i) Objects may expand on heating

(ii) Objects may change its state

(iii) Heat can turn a turbine

(iv) Heat can kill harmful bacteria present in milk and water

(v) Heat helps in cooking

2. Write an experiment to show that solids expand on heating.

Ans- Let us take an iron rod or a copper rod of the same length and then place the rod between the two wooden blocks. The raised wall of one of the blocks holds the end of the rod firmly in position at one end. Around pencil is placed under the other end of the rod. Now, let us attach a paper pointer to a pencil and then heat the rod. As the rod expands, it pushes the pencil which makes the pointer rotate. Hence the experiment shows that solid expand on heating.

3. Which of the following will be heated quickly – 100 ml or 200 ml of water if all conditions are same? Write an experiment to prove it.

Ans- If all the conditions are same, 100ml of water will be heated quickly.

Let us take two beakers (A and B) of 250 ml each and fill them with 200 ml and 100 ml of cold tap water in them. Then place beaker A with 200 ml of water on a tripod stand over a wire gauze and heat it over the flame for five minutes. Note the rise in temperature of water. Then place beaker B with 100 ml of water over the flame and heat it for five minutes. On noting the rise in temperature of water, we will find that the rise in temperature of 100 ml of water is almost twice the rise in temperature of 200 ml of water. The rise in temperature therefore depends on the amount of water taken.

4. Write an experiment to find out the melting point of ice.

Ans- Let us immerse a thermometer in ice and read the temperature. Then keep the beaker on the wire gauze on a tripod stand and heat it with a spirit lamp, and keep reading the temperature. We find that the temperature of ice remains 0°C . When all the ice has melted, only then the temperature starts to rise. Thus, through this experiment, we can ascertain the melting point of ice.

5. State an experiment to find out how much heat is supplied to a substance when heated.

Ans- Let us take 100 ml of water in a beaker and keep it over the wire gauze on a tripod stand and let the water heat over the flame. When water starts boiling, note the temperature of water with a thermometer by dipping its bulb into the water. The temperature rises in the thermometer and become constant at 100°C of heat is supplied to a substance when heated up to the boiling point.

(D) Long Type Question.

1. What is heat energy? Define sources of heat energy.

Ans- Heat energy is a kind of energy, transferred by a difference in temperature which has the ability to do work. The sources of heat energy are the sun, fuels like wood, coal, petroleum, food, electricity and nuclear energy.

2. Write about the “temperature” scale and “thermometer”.

Ans- Temperature is a measure of the amount of heat energy possessed by an object. Because temperature is a relative measurement, scales based on reference point must be used to accurately measure temperature. There are three main scales used universally to measure temperature like the Celsius ($^{\circ}\text{C}$) Scale, the Fahrenheit ($^{\circ}\text{F}$) Scale, and the Kelvin (K) Scale. Likewise, temperature can also be measured with three different thermometers, like laboratory thermometer, clinical thermometer and digital thermometer.

3. Write about three states of matter.

Ans- The three states of matter are solid, liquid and gas. When heated, all these states of matter respond differently. One form of matter can be changed into another form. The temperature at which a substance changes its states from liquid to gas is called its boiling point. Different substance have different melting and boiling points.

Chapter – 5 : Flow of heat

(A)(I)(II)(III). In your text book:

(B) Short Type Questions – (I)

1. What is conduction of heat?

Ans- The transfer of heat energy between different parts of a body or from one body to another in contact with each other is called conduction of heat.

2. In which direction – from colder region to hotter region or from hotter region to a colder region does the heat move?

Ans- Heat moves from hotter region to colder region.

3. How many types of conductors are there? Name them.

Ans- There are two types of conductors. They are good conductors and bad conductors.

4. What are good conductors of heat?

Ans- The substances which allow heat to pass through them easily are called good conductors of heat.

5. Give two examples of bad conductors of heat.

Ans- Wool and paper are two bad conductors of heat.

6. Why is the handle of a heating iron made of ebonite or wood?

Ans- Iron is a good conductor of heat and therefore when heated can burn our fingers when we are holding on hot iron utensil. As ebonite or wood are bad conductors of heat and they insulate heat, they are used in the handle of heating iron.

7. A cold spoon is dipped in a hot cup of tea. By which process does the spoon absorb heat from the tea?

Ans- The spoon absorb heat from the tea through the process of convection.

8. Which substance get heated by convection?

Ans- The liquids and gases are substances that get heated by convection.

9. Write one application of convection in daily life.

Ans- One application of convection in daily life is sugar dissolving in hot milk.

10. Name the process of transfer of heat from the sun.

Ans- The process of transfer of heat from the sun is called radiation.

11. Why do the solar cookers have black-painted surface inside?

Ans- Because black surface can absorb more of the radiated heat from the sun. That is why solar cookers have black painted surface inside them.

(C) Short Type Questions:

1. What are the conditions essential for the conduction of heat?

Ans- The conditions essential for the conduction of heat are:

- (i) The two objects should be in contact with each other.
- (ii) The temperatures of the two objects should be different.

2. Name the types of conductors with two examples of each.

Ans- There are two types of conductors, namely good conductors and bad conductors.

Examples of good conductors are iron and brass.

Examples of bad conductors are paper and plastic.

3. Give two uses of bad conductors of heat in our daily life.

Ans- Two uses of bad conductors of heat in our daily life are:

- (i) We use bricks, mud, wood, straw, etc to build houses
- (ii) Roofs and sheds are made up of asbestos to keep the houses cool

4. Give two reasons for the occurrence of storms.

Ans- The hot air moves up when it is heated or absorbs heat from the surroundings; and then a vacuum is created. The cooler air rushes from the surroundings to occupy the space resulting in occurrence of storms due to convection.

5. When cold milk is added to hot tea, how does the heat transfer take place?

Ans- When cold milk is added to hot tea and stirred, the hot tea moves and transfer heat to the cold milk due to convection.

6. Write two points due to which radiation occurs.

Ans- Radiation occurs from the natural sources:

- (i) Radioactive material in the environment.
- (ii) Cosmic rays.

7. Write two applications of radiation in our daily life.

Ans- Two applications of radiation in our daily life are;

- (i) Polished surface of room heaters radiates better or emits more heat.
- (ii) The base of working utensils is painted black at the bottom to absorb more heat.

(D) Long type questions:

1. How does the conduction of heat take place in the solids?

Ans- The molecules in a solid are packed close together, and when one end of the solid is heated, the molecules present there absorb the heat energy and start vibrating rapidly. These molecules then cause their neighbouring molecules to vibrate. This process continues along the rod and heat energy is transferred from the hotter part to the colder part. This is how the conduction of heat takes place in the solids.

2. Write an experiment to show the conduction of heat.

Answer and diagram you'll find on page 59 in the text book. (Activity – 1) Note down in your note book.

3. State an experiment to show that conduction of heat by different materials is different.

Answer and diagram you'll find on page 59 in the text book (Activity -2) Note down in your note book.

Chapter -6 : Acids, Bases and Salts

(A)(I)(II)(III) In your text book.

(B) Short type questions – I.

1. What is an acid?

Ans- An acid is a substance whose molecules have one or more replaceable hydrogen ion (S) and produces hydronium ions in water.

2. Name the substance formed when an acid reacts with a base.

Ans- The substance which forms when an acid reacts with a base is salt.

3. What is neutralisation reaction?

Ans- The process of treating an alkali with an acid or vice-versa is called neutralisation reaction.

4. Give two examples of salts in common use in our daily life.

Ans- Two examples of salt in common use in our daily life are;

(i) Common salt is essential in our diet as it contains iodine

(ii) It is used as a preservative for pickles, meat and fish

5. Give the reaction for formation of soap.

Ans- For the formation of soap, a kind of salt is formed by the reaction of oil with sodium hydroxide.

6. Why should we drink a lot of water after excessive sweating?

Ans- While sweating our body loses a large amount of salt and water. Therefore, to restore the lost body salts and water from normal health we should drink a lot of water after excessive sweating.

7. Name the substance formed when nitrogen dioxide is dissolved in water.

Ans- Dioxonitrate

8. Name a substance that reacts with dilute nitric acid to form a nitrate and water.

Ans- Calcium hydroxide

9. Name a substance which, when added to dilute HCl, involves hydrogen gas.

Ans- Zinc granules $\text{Zn(s)} + 2\text{HCl(aq)} \rightarrow \text{ZnCl}_2(\text{aq}) + \text{H}_2(\text{g})$

(C) Short type questions – II:

1. What are bases? Give example of any two commonly used bases.

Ans- Bases are compounds which have one or more hydroxide groups (-OH) in their molecules. The example of commonly used bases are baking soda and caustic soda.

2. What is an alkali? Name the element whose hydroxides form alkalies?

Ans- An alkali is the base of hydroxide that is soluble in water. The element whose hydroxides form alkalis are calcium, sodium and potassium.

3. 'All alkalis are bases, but all bases are not alkalis'. What does it mean?

Ans- Because bases have a pH above 7. There are two types, the one which is soluble is called Alkalis, the other one which are insoluble are called Insoluble Base. Not all bases are soluble but only some of them are soluble, for example, Ammonia, AgNaOH, etc are alkalis; they are soluble.

4. What will happen if an alkali is mixed with an acid?

Ans- If an alkali is mixed with an acid, it results in the production of salt and water.

5. What are acids? Name any two acids.

Ans- Acids are substances whose molecules have one or more replaceable hydrogen ion and which produce hydronium ions in water.

Nitric acid and sulphuric acid are the two kinds of acids.

6. Mention the behaviour of litmus paper in colour change with the following compounds:

a) $\text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{CO}_3$ on blue litmus paper

b) $\text{MgO} + \text{H}_2\text{O} \rightarrow \text{Mg(OH)}_2$ on red litmus paper

Give one example of each with complete reactant.

Ans- (a) Red

(b) Red to blue

7. Write one example each of acids that form nitrates, Sulphates, Chlorides and Carbonates.

Ans- (a) Nitric acid (Calcium nitrate)

(b) Sulphuric acid (Sodium Sulphate)

(c) Hydrochloric acid (Sodium Chloride)

(d) Carbonic acid (Sodium Carbonate)

8. Give one use of each of the following bases:

(a) Calcium hydroxide (b) Sodium Carbonate

Ans- (a) Used to manufacture bleaching powder

(b) Used to make medicines

9. Write three reactions of neutralisation.

Ans- The three reactions of neutralisation are:

(i) Sodium hydroxide (NaOH) + Hydro Chloric (HCL)

= Sodium Chloride (NaCl) + Water (H₂O)

(b) Sodium hydroxide (NaOH) + Sulphuric acid (H₂SO₄)

= Sodium Sulphate (Na₂SO₄) + Water (H₂O)

(iii) Potassium hydroxide (2KOH) + Sulphuric acid (H₂SO₄)

= Potassium Sulphate (K₂SO₄) + (2H₂O)

10. Write the chemical equation for neutralisation of caustic potash (potassium hydroxide) by sulphuric acid. Name the salt formed in the reaction.

Ans- $2\text{KOH} + \text{H}_2\text{SO}_4$

The salt formed in the reaction is potassium sulphate.

(D) Long type questions:

1. Name any two acids and write their uses.

Ans- (i) Hydrochloric acid

It is used in textile industries purification of common salt, making metal chlorides and as a reagent in laboratory and for making glue.

(ii) Sulphuric acid

It is used to manufacture fertilizers, drugs, dyes, detergent, paints and explosives, synthetic fibres, artificial silk and celluloid, refining petroleum products, storing batteries, in textile, paper and leather industries; and in large scale laboratories for various experiments.

2. Name any two bases and write their use.

Ans- (i) Baking soda – It is used to make dishes in kitchen, medicines, to neutralise acidity, etc.

(ii) Caustic potash – It is used to manufacture toilet soap, dyes, fertilizers, insecticides, explosives, etc.

3. Write the properties of acids and bases.

Ans- The properties of acids are:

(i) Acids are sour to taste

(ii) They turn blue litmus paper red.

The properties of bases are:

(i) Bases have bitter taste.

(ii) Their solution is soapy to touch.

4. Describe an experiment to show their reaction of neutralisation.

Ans- Page 74 – activity 5 – in your text book.

5. Write chemical equations of the following:

(i) Solutions of sodium chloride and silver nitrate are mixed and a white precipitate of silver chloride is formed.

Ans- $\text{NaCl} + \text{AgNO}_3 \rightarrow \text{AgCl} + \text{NaNO}_3$

(ii) Sodium hydroxide reacts with phosphorous acid and sodium phosphate is formed.

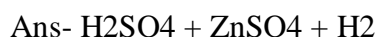
Ans- $3\text{NaOH} + \text{H}_3\text{PO}_4 \rightarrow \text{Na}_3\text{PO}_4 + 3\text{H}_2\text{O}$.

(iii) Copper oxide reacts with dilute sulphuric acid and copper sulphate and water are produced.



6. Give the chemical equations or reactions for formation of salt by reacting sulphuric acid with the following:

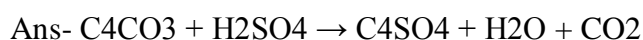
(a) Zinc metal



(b) Metal Oxide



(c) Metal carbonate



(d) Metallic hydroxide



7. State the use of salts in our daily life. Write two uses of each salt.

Ans- Two uses of each type of salt are:

(i) Common salt: Used to make food taste and preserve food.

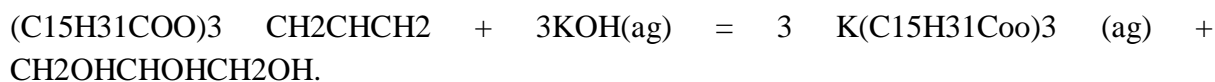
(ii) Washing soda: Used in laundry for washing clothes and cleaning and water softening.

(iii) Baking soda: Used to make medicines to neutralize acidity in the stomach and also as fire extinguishers.

(iv) Potassium nitrate: Used to make gun powder and fertilizers in agriculture.

8. How will you make soap? Write an experiment for it.

Ans- Traditional soap making involves the hydrolysis of various natural fats, which are usually the triglyceride esters of straight chain organic monoacids, with a strong aqueous base such as sodium or potassium hydroxide to produce soap. The natural fats are usually not pure compounds, but a typical example is:



Chapter 7: Chemical and chemical changes

(A) I, II. In the text book.

(B) Short type question – I.

1. Define matter.

Ans- A matter is a physical substance or material which occupies space and possess mass.

2. Define element.

Ans- An element is a basic bit of a building set from which different materials are made up.

3. Define compound.

Ans- A compound is a substance which is produced when two or more different atoms are combined together in a fixed ratio.

4. Which one of the following is a compound?

(a) Oxygen (b) Gold (c) Copper (d) Sugar

Ans- (d) Sugar

5. Write the symbols of the following elements:

(a) Iron – Fe

(b) Silver – Ag

(c) Tin – Sn

(d) Copper – Cu

6. What are reactants?

Ans- During a chemical reaction, the substance that undergo a reaction are called reactants.

7. What are products in a chemical reaction?

Ans- During a chemical reaction, new substance are formed as a result of the reaction. These substances are the products in chemical reaction.

8. State the different characteristics of chemical reactions.

Ans- The different characteristics of chemical reaction are:

(i) A chemical reaction takes place when two different kinds of substances react chemically, or a chemical change takes place to produce new substance.

(iii) A chemical reaction follows a number of definite pattern to occurs.

(iii) A chemical reaction takes place gradually. It does not occur all of a sudden.

9. What are endothermic reaction?

Ans- Endothermic reaction is a kind of reaction in which heat is absorbed.

10. What are exothermic reactions?

Ans- Exothermic reactions is a kind of reaction which produces or release energy.

11. State the different types of chemical reactions.

Ans- The different types of chemical reaction are:

(i)Combination reaction

(ii) Decomposition reactions

(iii) Displacement reactions

(iv) Double displacement reactions

(v) Oxidation – reduction reactions.

12. What is crystallisation?

Ans- Crystallisation is the process of making crystals of a substance.

(C) Short type questions – II

1. Define chemical equation, reactants and products.

Ans- When a chemical reaction takes place between two different substances and a chemical change takes place to produce a new substance. The substances that undergo a reaction are called reactants. The newly formed substances of reaction are called products.

2. What is the importance of chemical equation?

Ans- Following are some importance of chemical equations:

(i)It reveals the reactants and products taking place in a chemical reaction

(ii)It tells the direction of the react as whether it is a direct or reversible reaction.

(iii) It reveals the elements and radicals present in the reactants and products.

(iv) It also helps to imagine the movement of the elements and radicals in the chemical reaction.

(v) The state of matter is expressed as whether the reactants and products are solid, liquid, gas or gaseous.

3. Give an example to show that some reactions involve a change of colour.

Ans- Displacement reaction is a kind of reaction in which one element replaces another element in a compound. In this reaction, when a copper wire is dipped in silver nitrate solution, the silver nitrate solution turns bluish due to copper. Thus, we can prove that some reactions involve a change of colour.

4. Give an example to show that substances change their state in some chemical reactions.

Ans- When a chemical reaction occurs between baking soda and vinegar, the two substances react with each other and produce salt, water and carbon dioxide. Thus, it proves that substances change their state in some chemical reaction.

5. What are combination reactions? Give an example of a combination reaction.

Ans- When simpler substances or elements react to form a compound or complex substance, the reaction is said to be a combination reaction.

Example – when nitric oxide reacts with oxygen, it forms nitrogen oxide.

6. Define decomposition reactions with the help of an example.

Ans- When a substance or compound decomposes into two or more substances, the reaction is called decomposition reaction.

Example – During electrolysis, water is decomposed into hydrogen and oxygen gases.

7. What are displacement reactions? State with the help of an example.

Ans- The reaction in which an element replaces another element in a compound is called displacement reaction. Example- When a copper wire is dipped in silver nitrate solution, it is coated with silver simultaneously, the colour of silver nitrate solution turns bluish due to the addition of copper.

8. Define the double-displacement reactions with the help of an example.

Ans- A kind of reaction where there is an exchange of atoms or groups of atoms is called double-displacement reaction. This reaction is of two kinds- neutralisation reaction and precipitation reaction.

An example of neutralisation can be the reaction between an acid and an alkali, and vice versa.

An example of precipitation reaction can be the form of reaction where two compounds in their aqueous form react to form an insoluble salt which settles down as precipitate.

9. Define oxidation- reduction reactions with the help of an example.

Ans- Oxidation – reduction reaction is a kind of chemical reaction which involves addition of oxygen or removal of hydrogen from a substance.

Example – When hydrogen iodide reacts with oxygen, the hydrogen is removed from the hydrogen iodide molecule and oxygen is added at its place.

(D) Long type questions:

1. Write your comments on – “Why do we use symbols”?

Ans- We use symbols to recognise and remember elements and their components easily. The names of some elements and compounds are long enough for us to remember. Hence, for the sake of convenience, symbols are used.

2. Write 10 elements and their symbols.

Ans- Ten elements and their symbols are:-

(i) Sodium – Na; (ii) Copper – Cu; (iii) Iron – Fe; (iv) Silver – Ag; (v) Potassium – K; (vi) Tin – Sn; (vii) Gold – Au (viii) Mercury – Hg; (ix) Lead- Pb; (x) Tungsten- W.

3. How is a chemical equation written? Briefly explain.

Ans- Chemical equation for a chemical reaction is written as follows: Identify the reactants and the products of the chemical reaction. Write down the formulae or symbols of the reactants only the left hand side with a sign of plus (+) between them. The formulae or symbol of the products formed in the reaction are written only the right hand side with a sign of plus(+) them.

Chemical equation for a chemical reaction is written as follows:

Step-1: Identify the reactants and the products of the chemical reaction.

Step-2: Write down the formula or symbols of the reactants only the left hand side with a sign of plus(+) between them. The formulae or symbols of the products formed in the reaction are written only the right hand side with a sign of plus (+) them.

Such a chemical equation is called the skeleton equation.

Step-3: Count the number of atoms of each element on both the sides. If the number of atoms of each element only both sides is equal, then the equation is called a balanced chemical equation. If the no of atoms of any one or more of the elements on both the side is not equal, then these are made equal by adjusting the coefficients before the symbols and the formulae of the reactants and products. The process by which the no. of atoms of each elements on both sides are made equal, is called balancing of chemical equation. The balancing of chemical equations is described.

Step-4: In the end, the chemical equation is made molecular, if required.

4. State the different kinds of combination and decomposition reactions stating an example of each.

Ans- The different kinds of combination reaction are:

(i) Combination of two elements

Example: Carbon burns in the presence of oxygen to form carbon dioxide.

(ii) Combination of an element with a compound.

Example: When nitric oxide reacts with oxygen, it forms nitrogen dioxide.

(iii) Combination of two compounds

Example: When ammonia reacts with hydrochloric acid, it forms ammonium chloride.

The different kinds of decomposition reaction are:

(i) Decomposition of a compound into two elements .

Example- During electrolysis, water is decomposed into hydrogen and oxygen gases

(ii) Decomposition of a compound into one compound and one element.

Example- When potassium chloride is heated, it decomposes into potassium chloride and oxygen.

(iii) Decomposition of a compound into two compounds.

Example- When calcium carbonate is heated, it decomposes into calcium oxide and carbon dioxide.

(iv) Decomposition of vinegar and baking soda

Example- When vinegar comes in contact with baking soda, there occurs a reaction between the two substances and thus salt, water and carbon dioxide are produced.

5. Describe an experiment to show that separation of substances can be done through crystallisation.

Ans- To describe the separation of substances by crystallisation through the following experiment:-

Let us dissolve some salt in hot water and stir them so that they do not remain undissolved. Now heat the water over a spirit lamp. The water starts evaporating when the entire water evaporates the solid salt is left behind in the vessel.

This is how, we can separate the dissolved substance from the liquid solvent by means of crystallisation.

Chapter-8: Weather and climate

(A)I. Choose the correct answer and put a tick(✓) mark in the box:

1 (d) , 2 (d), 3 (c), 4 (b), 5 (c) Trunk

II. Match the statements in column A with those in column B.

A	B
1	e
2	c
3	d
4	b
5	a

(B) Short type questions – I.

1. What are adaptations?

Ans:- The ability to survive and cope up with the mechanism to sustain the various climatic variations that occur in different habitats around the world is called adaptation.

2. List the factors that affect the climate of a place.

Ans:- The factors that affect the climate of a place are:

(i) Availability and intensity of the sunlight.

(ii) The flow of wind

(iii) The moisture in the air and

(iv) The altitude of a place.

3. What do you mean by climate?

Ans:- The long term prevalent weather of a place is called climate.

4. What do you understand by migration?

Ans:- The periodic movement among animals from one place to another in order to escape extreme cold weather is called migration.

(C) Short type questions –II:

1. Why do penguins huddle themselves together?

Ans:- The penguins huddle themselves together to beat the cold and keep themselves warm.

2. Name three animals adapted to live in the polar region.

Ans:- Three animals that are adapted to live in the polar region are penguins, seals and polar bears.

3. How is an elephant adapted to live in tropical rainforest?

Ans:- The elephants keep moving their big ears to keep their body cool and help to hear very small sounds. They use their trunk for picking up food. Their tusks are modified teeth that can tear the bark of trees. Due to all these specialities, the elephants have adapted themselves to live in tropical rainforest.

4. Why is it generally cooler in the night than during the day?

Ans:- After a sunny and warm day were, we might get high temperature during the day, a lean night will allow that heat to be radiated out back into space, dropping temperatures near freezing.

(D) Long Answer type question:

1. How is a polar bear adapted to live in the polar regions?

Ans:- The body of polar bear is converted with a thick coat of white fur which helps them to hide themselves from other animals and hunt their prey easily. They have two thick layers of skin beneath which there is a thick coat of fat. They also have large, wide paws which help them to swim and walk easily. Due to all these features, a polar bear is adapted to live in the polar regions.

2. How is a camel adapted to live in the desert?

Ans:- A camel drinks good quantity of water at a time and stores fat in its hump which gets converted into metabolic water when needed. He uses its broad, padded feet to walk easily on sand. It also does not perspire and so there is no water loss through sweating. Camels also excrete very little urine and dry dung when it does not get water to drink. Because of all these features, camels have adapted to live in the deserts.

3. Why do birds migrate? Give two examples of birds that migrate.

Ans:- Birds migrate to protect themselves from extreme cold weather of a place. They leave for warmer regions and return a gain on the arrival of favourable weather. Two examples of birds that migrate are Arctic tern and Siberian crane.

4. Describe adaptations in penguins to live in polar region.

Ans:- Penguins have their own unique way to heat the cold in polar regions. They get together and huddle themselves close to each other. The down under portion of their feathers trap a layer of air against the skin. This layer of air is then warmed by their body heat. Their feathers overlap like shingles on a roof and form a barrier, keeping water away from the skin. They also have layer of blubber or fat under their skin. It is due to all these special features that penguins are well adapted to live in polar regions.

End