CHAPTER-1
NUTRITION IN PLANTS

Date Slot: **No. of Periods: 07**

Text Book Exercise

Q.1 **Why do organisms need to take food?**

A.1 Organisms need food to:
(i) get energy to do work.
(ii) build body.
(iii) repair damage in the body.
(iv) maintain the functions of the body.

Q.2 **Distinguish between a parasite and saprophyte.**

A.2

Parasite	Saprophyte
The organism that grows on the body of another organism and derives nutrients from it is called parasite.	The organism that derives nutrients from dead and decaying organic matter is called saprophyte.
They feed directly on living organisms for their nutrition.	They can feed only on dead and decaying matter.
They take the readymade food from host.	They take the decayed and digested food.

Q.4 **Give the brief description of photosynthesis in green plants.**

1. Photosynthesis is the process of synthesis of food in plants with the help of chlorophyll and carbon dioxide in the presence of sun light and water.

2. Water and minerals present in the soil are absorbed by the roots and transported to the leaves through vessels.

3. Carbon dioxide is taken through stomata present on leaves. Leaves capture the energy of sunlight with the help of chlorophyll. This energy is used to synthesize food from carbon dioxide and water.

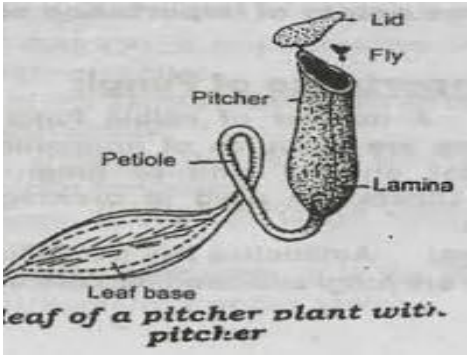
$$Carbon\ dioxide + water \xrightarrow{sunlight} Carbohydrate + Oxygen$$

Q.3, Q5 to Q12 (discussed and marked intextbook)

Assignment Questions

Q.1 **Why does pitcher plant trap insects?**

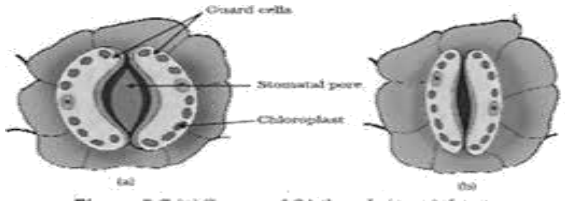
A.1 Pitcher plant is an insectivorous plant that grows only in soil which does not have sufficient nitrogen. These plants trap insects by various methods, kill them and digest them to obtain required nitrogen compounds for their growth.



eaf of a pitcher plant with pitcher

Q.2 **When we observe the lower surface of leaf through a magnifying lens, we see numerous small openings. What are they called? Explain their structure with diagram.**

A.2 Stomata are the numerous small openings present on lower surface of leaf. Each stoma is surrounded by a pair of guard cells. These stomata help in exchange of gases (carbon dioxide goes in and oxygen is released) and in transpiration.



Open stomata close stomata

Q.3 **A goat eats away all the leaves of small balsam plant. However, in few days new leaves could be seen sprouting in the plant again. How did the plant survive without leaves?**

A.3 The balsam plant survived on the food stored in roots and stem. It might have under gone gaseous exchange through lenticels on the stem.

Q.4 **Nitrogen is an essential nutrient for plant growth. But, farmers who cultivate pulses such as green gram, Bengal gram and black gram etc. do not apply nitrogenous fertilizer during cultivation. Why?**

A.4 Plants such as pulses, peas, gram are called leguminous plans. These plants have root nodules in them, which have a symbiotic relation with bacteria such as Rhizobium.

These bacteria convert gaseous nitrogen of air in to water soluble nitrogen compound like nitrates.

Some of these nitrogen compounds are used by the leguminous plants for their growth.

Hence, farmers do not need to apply nitrogenous fertilizer in field during cultivation.

Q.5 **Wheat dough if left in the open, after a few days, it starts to emit a foul smell and becomes unfit for use. Give reason.**

A.5 Carbohydrate in wheat dough encourages the growth of yeast and other saprophytic fungi. They break down carbohydrate into simpler compound like carbon dioxide and alcohol, which leads to a foul smell.

Q.6 **Define various modes of nutrition in plants.**

A.6 Various modes of nutrition in plants are-

1. Autotrophic mode of nutrition- plants can synthesize their own food by the process of photosynthesis
2. Heterotrophic mode of nutrition- The plants which cannot synthesize their food but, depend upon other organisms for their nutrition and called heterotrophs.
3. Heterotrophic plants can be further classified into parasites, saprophytes, insectivorous and symbiotic plants.

CHAPTER-2
NUTRITION IN ANIMALS

Date Slot: **No. of Periods: 07**

Text Book Exercise

Q.1 to Q.4 (Discussed and done in text book)

Q.5 **What are villi? What is their location and function?**

A.5 Villi are located in the small intestine. The inner wall of the small intestine has thousands of finger-like outgrowths called villi. The villi increase the surface area for absorption of the digested food. Each villus has a network of thin and small blood capillaries. Which absorb nutritive components from digested food and supply to each cell of the body through blood.

Q.6 **Where is the bile produced? Which component of the food does it digest?**

A.6 Bile is produced in liver and stored in gall bladder. Bile juice plays an important role in digestion of fat.

Q.7 **Name the type of carbohydrate that can be digested by ruminants but not by humans. Give the reason also.**

A.7 Cellulose is a type of carbohydrate that can be digested by ruminants and not by humans. Ruminants have a large sac like structure called Caecum between the small intestine and large intestine The cellulose of the food is digested here by the action of certain bacteria which are not present in humans.

Q.8 **Why do we get instant energy from glucose?**

A.8 Glucose is the simplest form of carbohydrate which can be broken easily to give energy. So we get instant energy from glucose.

Q.10 **Write one similarity and one difference between the nutrition in amoeba and human beings.**

A.10 Similarity: Both Amoeba and human have holozoic type of nutrition.

Difference: Human beings have complex structure for the ingestion, digestion and egestion of food while Amoeba has simple process in which it engulfs with the help of pseudopodia and food get trapped in food vacuoles.

Q.9, Q11 and Q12(discussed and done in textbook)

Q.13 **Can we survive only on raw, leafy vegetables/grass? Discuss.**

A.13 No, because to live alive a healthy life we need a complete balance of all nutrients. Raw green vegetables may have cellulose which cannot be digested by us. So, only green leafy vegetables will not solve the purpose

Assignment Questions

Q.1 **Ruminants such as cows and buffaloes swallow their food hurriedly and then sit restfully and chew their food. Can you give reason why?**

A.1 1.Ruminants such as cows and buffaloes swallow their food hurriedly and store it in a part of the stomach called rumen.

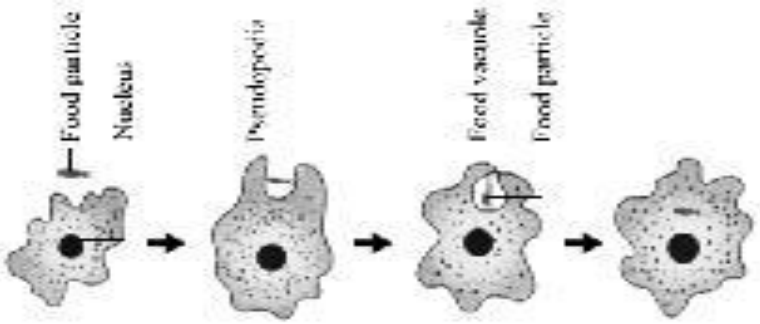
2.This partially chewed food is called cud.

3.Later, this partially digested food (cud) is returned to the buccal cavity of the animals in small lumps and animal chews it sitting restfully to complete the process of digestion. This process is called rumination.

4.The thoroughly chewed cud is swallowed again to other compartment of stomach and then into small intestine for complete digestion and absorption.

Q.2 **How does amoeba procure its food?**

A.2 Amoeba is a microscopic single celled organism mainly found in pond water. It has an irregular shape. Its food consists of microscopic organisms. On sensing food Amoeba gives out pseudopodia which surrounds the food particle, forms a food vacuole and ultimately take the food particle inside the body.



Q.3 **How digestion in grass eating animals (Ruminants) is different from humans?**

A.3

S. N.	Ruminants	Humans
1.	Stomach of grass eating animals is divided in to four chambers 1. Rumen 2. Reticulum 3.Omasum 4 Abomasum	Human stomach is a single sac like structure
2.	Cud is brought back to mouth for rumination.	Chyme is not brought back to mouth for re-chewing.
3.	Ruminants can digest cellulose.	Humans cannot digest cellulose

Q.4 **Define different types of human teeth with their diagram.**

A.4

Different types of teeth are

1. Incisors 2. Canines 3. Premolars 4. Molar

1. **Incisors** are also called biting teeth, helps in bite the food. They are total 8 in number

2. Canines help in tearing and piercing the food, they are total 4 in number and present on either side of incisors.

3. Premolars are total 8 in number and present on either side of canines. They help in chewing and grinding the food.

4. **Molars** are total 12 in number and present on either side of premolars. They also help in chewing and grinding the food.

CHAPTER-4
HEAT

Text book Exercise

Q1. **State similarities and differences between the laboratory thermometer and the clinical thermometer.**

Similarities:

i.both made up of uniform glass tube.
ii.both contain mercury.
iii.both have bulb at one end.
iv.both generally have Celsius scale

A.1

S.N	CLINICAL THERMOMETER	LABORATRY THERMOMETER
1.	Range of clinical thermometer is from 35°C to 42°C.	Range of laboratory thermometer is from -10°C to 110°C
2.	Clinical thermometer is used to measure the temperature of human body.	Laboratory thermometer is used to take the reading of temperature in laboratory
3.	In case of clinical thermometer, mercury level falls when removed from the mouth due to presence of kink.	Mercury level falls when removed from the source in case of laboratory thermometer.

Q2, Q3, Q4, Q8 to Q11 (Discussed and done in textbook)

Q.5 **Discuss why wearing more layers of clothing during winter keeps us warmer than wearing just one thick piece of clothing**?

A We wear more layers of clothing during winter to keeps us warmer than wearing just one thick piece of clothing because air gets trapped in between the two or more layers of clothing. This air prevents the flow of heat from our body to the cold surroundings as air is bad conductor of heat.

Q7. **In places of hot climate, it is advised that the outer walls of houses be painted white. Explain.**

A. In places of hot climate, it is advised that the outer walls of houses be painted white because white colour absorbs least heat. It reflects most of the heat and hence keeps the house cooler.

Assignment Questions

Q.1 **Shopkeeper selling the ice blocks usually cover them with the jute sacks. Explain why?**

A.1 1. Since, a jute sack is a thermal insulator, therefore, it helps ice not to melt immediately.
2. So, shopkeepers must use insulating materials like sack, saw dust, newspaper etc, to cover the ice.

Q2. **In a mercury thermometer, the level of mercury rises when its bulb comes in contact with a hot object. What is the reason for this rise in the level of mercury?**

A.2 As the temperature increases, expansion of mercury takes place in the capillary tube which leads to the rise in the level of mercury in thermometer.

Q.3 **For setting curd, a small amount of curd is added to warm milk. The microbes present in the curd help in setting if the temperature of the mixture remains approximately between 35°C to 40°C. At places where room temperature remains much below the range, setting of curd becomes difficult. Suggest a way to set curd in such a situation.**

A.3 For the setting of curd at places where temperature is below room temperature, the container in which curd is to be made, must be kept in a thermally insulated cover or

it can be wrapped either by a woollen material or a jute sack so that temperature is maintained for the setting of curd. The container can also be kept in the sun or near the gas stove while cooking food for the setting of curd.

Q.4 **You may have noticed that a few sharp jerks are given to clinical thermometer before using it. Why is it done so?**

A.4 Jerks are given to clinical thermometer before using it to settle down the mercury level below normal temperature so that the measurement of temperature of a body can be taken accurately.

It is advised not to hold the thermometer by its bulb while reading it. Explain, why?

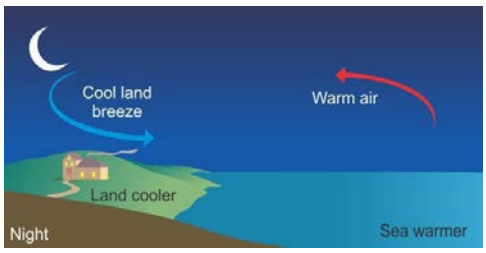
We are advised not to hold the thermometer bulb while reading ii, as the level of mercury increases from the actual reading due to our body temperature.

Q.5 **While constructing a house in a coastal area, in which direction should the windows preferably face and why?**

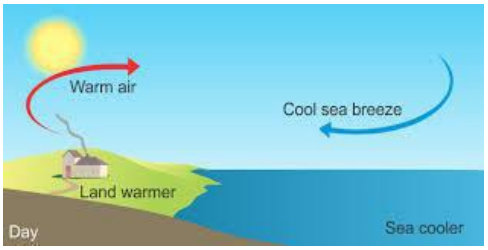
A.5 Windows should preferably face towards the sea beach because the sea breeze coming from sea keeps the house cool during the day time.

Q.6 **Explain land breeze and sea breeze with relevant diagram.**

A.6 Land breeze-Cold breeze that flows from land surface to sea surface in summer nights.



Sea breeze- Cold breeze that flows from sea surface to land surface in summer day.



Q7. **List one application each of conduction, convection and radiation.**

A.7 Conduction is applicable to transfer heat from hotter end to cooler end of a solid object, like steel spoon become hot when left in cooking pan for a longer time. Land breeze and sea breeze are based on convection current. Sun light reaches to us due to radiation.

Q.8 **Why is it advisable to take umbrella while going out in the summer afternoon?**

A.8 This is because in summer afternoon the temperature is quite high. The sun rays contains certain harmful radiation like UV, which are harmful to our skin. Using an umbrella reduces the risk of direct skin contact to sunlight and from the effect of harmful ultraviolet rays.

CHAPTER-3
FIBRE TO FABRIC

Text book Exercise

Q1 to Q3 and Q.5 to 9(Discussed and done in textbook)

Q.4 **What is meant by the following terms?**
(i) Rearing (ii) Shearing (iii) Sericulture

A.4 i Rearing : It means taking care of herds of animals which includes feeding, grazing, breeding, etc. for economical purpose like meat and other useful products.
ii Shearing : The removal of fleece of the sheep along with a thin layer of skin from its body is called shearing.
iii Sericulture: Rearing silkworm for the production of silk economically is called sericulture.

Assignment Questions

Q.1 **How do the hair of certain animals help in keeping their bodies warm?**

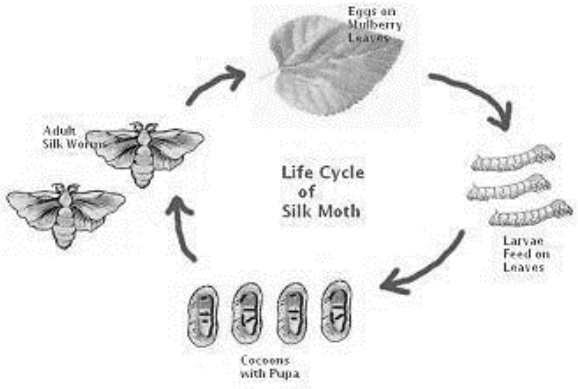
A.1 1. Hair (or wool) of these animals trap a lot of air.
2. Air is a poor conductor of heat.
3. So, the air trapped in hair (or wool) of these animals prevents their body heat to escape in the surroundings and keeps them warm.

Q.2 **Write various steps for processing fibres into wool.**

A.2 (i)**Shearing** The first step is to remove fleece of the sheep along with thin layer of skin. This process is called shearing.
(ii) **Scouring** In this step, the sheared hair is washed thoroughly to remove grease, dust and dirt.
(iii) S**orting** In this step, different textures of hair are separated or sorted.
(iv) Separating burrs Burrs are small fluffy fibres which are picked out from the hair.
(v) **Dyeing** The fibres are dyed in various colours, as the original colours of fleece are usually black, white or brown.
(vi) **Rolling** In this process, the fibres are straightened, combed and rolled into yarn. And the fibres now as wool are ready to be woven.

Q.3 **Describe the life history of silk moth with the help of figures of various stages**

A.3 The life cycle of silk moth is completed in four main stages as depicted below in the diagram



i. The female silk moth lays eggs on the leaves of a mulberry tree.
ii The eggs hatch to form larvae called ‘caterpillar’ or ‘silkworms’.
iii The silkworms grow in size feeding on mulberry leaves and when the caterpillar is ready to enter the next stage of its life history called pupa.
iv It first weaves a covering to hold itself, which is known as cocoon.
v. Pupa develop inside cocoon into moth and comes out as an adult male or female silk moth.

Q.4 **Write occupational hazard associated with sorter’s job.**

A.4 Sorter’s job is risky as sometimes they get infected by a bacterium anthrax. which causes a fatal blood disease called sorter’s disease.

Q.5 **What do you mean by term selective breeding?**

A.5 The process of selecting parents for obtaining special characters in their off springs is termed as selective breeding.

Q.6 **Does shearing hurt the sheep?**

A.6 Shearing does not hurt the sheep because the upper most layer of skin is dead. Also the hair of sheep grows again as just our hair does.

Q.7 **Why caterpillars need to shed their skin when they grow bigger?**

A.7 The caterpillars eat their own shed skin during their growing stage and have no other food option. So they need to shed their skin when they grow bigger enter the next stage of its life history called pupa.

Q.8 **Why a cotton garment cannot keep us as warm in winter as a woollen sweater does?**

A.8 Cotton clothes are thin and do not have spaces in their fabrics through which air can be trapped, to keep us warm thus Cotton clothes do not prevents heat coming out of our body.

CHAPTER-5
ACIDS, BASES AND SALTS

Text Book Exercise

Q.1 **State differences between acids and bases.**

A.1

S.	ACIDS	BASES
1.	Acids are sour in taste.	Bases are bitter in taste.
2.	It turns blue litmus paper red.	It turns red litmus paper blue.
3.	It doesn't change the colour of turmeric indicator.	It changes the colour of turmeric indicator to reddish brown.
4.	It doesn't feel soapy on touching.	It feels soapy on touching.

Q.4 **Is the distilled water acidic, basic or neutral? How would you verify it?**

A.4 1. An indicator is used to determine whether the given solution is acidic, basic or neutral.
2. Distilled water is neutral. It can be verified with the help of red and blue litmus paper.
3. It shows no change with both kind of litmus paper.

Q.5 **Describe the process of neutralisation with the help of an example.**

A.5 The process in which an acid reacts with a base to form salt and water with evolution of heat is known as neutralisation reaction.
The reaction is given below**:**

Hydrochloric acid + Sodium hydroxide → Sodium Chloride + Water + HEAT
(HCl) (NaOH) (NaCl) (H_2O)

Q.7 **Dona has a few bottles of soft drink in his restaurant. But, unfortunately these are not labelled. She has to serve the drinks on the demand of customers. One customer wants acidic drink; another wants basic and third one wants neutral drink. How will Dorji decide which drink it to be served to whom?**

A.7 She can decide by the use of indicator. If the sample of drink turns red litmus blue, it is basic. If it turns blue litmus red, it is acidic. If it does not affect litmus, it is neutral.

Q.8 **Explain why:**
i An antacid tablet is taken when you suffer from acidity.
ii Calamine solution is applied on the skin when ant bites.
iii Factory waste is neutralized before disposing it into the water bodies.

A.8
i Antacids are nothing but bases. When there is excess of acid in stomach antacid tablet neutralize the acids and relieve us.
ii Ant injects an acid during bite which causes the burning sensation. Calamine solution is basic in nature. It neutralizes the acid and relieves from the pain.
iii Factory wastes contain both acidic and basic substances. These are harmful for the organisms living in water. So, these are should be neutralized before disposing.

Q.9 **Three liquids are given to you. One is hydrochloric acid, another is sodium hydroxide and third is a sugar solution. How will you identify them? You have only turmeric.**

A.9 1. Dip the turmeric indicator strip in each liquid.
2. The liquid in which the colour of turmeric indicator changes to reddish brown is basic in nature i.e. sodium hydroxide.
3. Since, we already identified sodium hydroxide. We will pour the sodium hydroxide in other two bottles.

4. The liquid which get warm after pouring the sodium hydroxide (base) in it is of hydrochloric acid as heat gets evolved in the neutralization process.
5. The last one which shows no effect is liquid of sugar solution.

Q.10 **Blue litmus paper is dipped in a solution. It remains blue. What is the nature of the solution? Explain.**

A.10 The above solution could be a base or a neutral solution because blue litmus paper doesn't change its colour in the neutral as well as basic solution

Assignment Questions

Q.1 **What is acid rain? Where do these acids come from? What is the effect of acid rain?**

A.1 1. Rain water which dissolves the pollutants like carbon dioxide, nitrogen dioxide and sulphur dioxide, which are released into the air as pollutants and dissolve in rain drops to form carbonic acid, nitric acid and sulphuric acid is called acid rain.
2. Acid rain can cause damage to buildings, historical monuments, plants and animals

Q.2 **Explain why pickles and jams should not be stored in metal containers?**

A.2 Pickles contain vinegar which has acetic acid while jam contains tartaric acid. If they are stored in metal containers, a chemical reaction will take place making the pickle and jam toxic and can cause harm to health.

Q.3 **How does the soil become too acidic or basic? What treatment should be given to such soil?**

A.3 1. Excessive use of fertilizer is the main cause to make the soil acidic, soil pollution, rainfall, also decides the pH of soil.
2. When the soil is too acidic, it is treated with bases like quick lime (calcium oxide) or slaked lime (calcium hydroxide).
3. If the soil is basic, organic matter is added to it. Organic matter releases acids which neutralises the basic nature of soil.

Q.4 **Define the following:**

a **Indicators:** Indicators are the special type of substance used to test whether the given substance is acidic or basic

b **Neutral:** Substance that are neither acidic nor basic are called neutral substances.

CHAPTER-6
PHYSICAL AND CHEMICAL CHANGES

Text Book Exercise

Q1 to Q3,Q.8 (Discussed and done in text book)

Q.4 **When baking soda is mixed with lemon juice, bubbles are formed with the evolution of a gas. What type of change is it? Explain.**

A.4 When baking soda is mixed with lemon juice, the bubbles which are formed with the evolution of a gas is due to the evolution of carbon dioxide gas. Since, there is formation of a new substance in this reaction, it is a chemical change.

Q.5 **When candle burns, both physical and chemical changes take place. Identify these changes. Give another example of familiar process in which both the chemical and physical changes take place.**

A.5 1. The wax of the candle first melt then vaporizes and burns.
2. Melting of wax is a physical change since melted wax can be solidified back to the wax and there is not new substance is formed.
3. When wax and wick of the candle burns, smoke and carbon dioxide is formed which are new substance. So, it is a chemical change.
4. Cooking of food is both physical and chemical because raw vegetables get cooked which is a chemical change and the water changes into steam which is a physical change.

Q.6 **How would you show that setting of curd is a chemical change?**

A.6 The curd is formed from milk. Both curd and milk have different properties. Also, once the curd is formed it cannot be reversed back into milk. So, there is formation of new substance with different properties and also an irreversible process, setting of curd is a chemical change.

Q.7 **Explain why burning of wood and cutting it into small pieces are considered as two different types of changes.**

A.7 Burning of wood produces ash and smoke. Hence the properties of wood are changed and new substances are formed. So, it is a chemical change. When a log of wood is cut into small pieces, there is no new substance formed. Each small piece bears the properties of wood. So, it is a physical change. Obviously,

Q.9 **Explain how painting of an iron gate prevents it from rusting?**

A.9 Painting of an iron gate prevents it from rusting because it cut the direct contact of iron from the environment and therefore there is no further exposure of iron to oxygen in moisture which is the cause for rusting.

Q.10 **Explain why rusting of iron objects is faster in coastal areas than in deserts?**

A.10 In coastal areas there is more moisture in air due to the presence of sea. But, in desert there is a scarcity of water and hence air is almost dry there. Both air and moisture are necessary conditions for rusting. So, rusting is faster is coastal areas than in desert.

Q11 and Q 12(discussed and done in textbook)

Assignment questions

Q.1 **Define:**

a **Galvanization**
b **Crystallisation**
c **Physical change**
d **Chemical change**

A.1

a The process in which a metal like chromium or zinc is deposited on the surface of iron articles by passing electric current is called galvanization.

b Crystals of pure substances are obtained from their solution by a process called crystallisation.

c The change in which a substance undergoes a change in its physical properties is called physical change. In this type of change no new substance is formed.

d When two or more substances react to produce one more new substance with a different set of properties is called chemical change

Q.2 **Explain the following:**

1. Lime water turns milky on passing carbon dioxide gas through it.

2. Bubbles are produced when acetic acid is added to a solution of sodium hydrogen Carbonate.

A.2

1. When carbon dioxide (CO_2) reacts with lime water [$Ca(OH)_2$], then calcium carbonate($CaCO_3$) and water (H_2O) is formed.

$$Ca(OH)_2 + CO_2 \longrightarrow CaCO_3 + H_2O$$

Calcium carbonate being insoluble white powder gives milky appearance to water.

2.When baking soda ($NaHCO_3$) is added to acetic acid (CH_3COOH) then carbon dioxide(CO_2)gas is formed which causes appearance of bubbles.

$$CH_3COOH + NaHCO_3 \longrightarrow CO_2 + \text{other substance}$$

Q.3 **Give an example of a chemical reaction for each of the following situations:**

(i) A change in colour is observed.

(ii) A gas is evolved.

(iii) Sound is produced.

A.3

i Chemical reaction between copper sulphate solution and iron metal.
In this reaction, blue colour of copper sulphate solution changes to light green colour due to the formation of iron sulphate.

ii When baking soda and vinegar are mixed together then a chemical change takes place and bubbles of carbon dioxide gas are formed along with some other substances.

iii Explosion of a firework produces heat, light, sound and unpleasant gases. Explosion of firework is a chemical change.

Q.4 **What is rust? Write the conditions necessary for rusting.**

A.4

1. When iron objects are left exposed to moist air, a substance with a brown flaky layer is formed on surface of object. This brown layer is called rust.
2. Oxygen and water both are necessary for rusting.

Q.5 **Food items like apples if cut and exposed to air become brownish. Explain, why?**

A.5 Cut apple turn brown due to the formation of melanin by the reaction between compound present in apple and atmospheric air.

CHAPTER-7
WEATHER, CLIMATE AND ADAPTATIONS OF ANIMALS TO CLIMATE

Text book Exercise

Q1. **Name the elements that determine the weather of a place.**

A. The elements that determine the weather of a place are temperature, humidity, rainfall, wind-speed, latitude, altitude and nearness to sea.

Q2. **When are the maximum and minimum temperatures likely to occur during day?**

A. The maximum temperature of the day occurs in the afternoon while the minimum temperature occurs generally in the early morning,

Q3 to Q6(discussed and done in textbook)

Q7. **The tropical rain forest has large population of animals. Explain why it is so?**

A. 1. The tropical rainforest has a large population of animals due to favourable climatic conditions and easy availability of different kinds of foods.

2. The regions is hot and humid with ample rainfall which supports the growth of animals and plants.

Q8. **Explain, with examples, why we find animals of certain kind living in particular climatic conditions?.**

A. 1. The organisms interact with the environment to survive. So, it is necessary for the organisms to have characteristics that suits the environment.

2. Polar bears have white fur so that they are not easily visible in the snowy background.

3. It protects them from their predators. It also helps them in catching prey.

4. The thick layer of fur and fat deposit inside the skin insulate them to survive in cold climate.

5. On warm days for keeping their body cool polar bear goes for swimming.

6. It is a good swimmer. Its paws are wide and large, which help not only to swim well but also walk with ease in the snow.

Q9. **How do elephant living in the tropical rainforest adapt itself?**

A. The elephant has adapted to the conditions of rainforests in many ways.

1. It uses the trunk as nose because of which it has as strong sense of smell. The trunk is also used by it for picking up food.

2. Moreover, its tusks are modified teeth. These can tear the bark of trees that elephant love to eat.

So, elephant is able to handle the competition for food rather well.

3. Large ears of elephant help it to hear even soft sounds. They also help the elephant to keep cool in the hot humid climate of the rain forest.

Q10, Q11, Q12(Discussed and done in text book)

Assignment Questions:

Q1. **Mention few characteristics which make the Penguin a good swimmer**.

A. Penguins have streamlined body, flipper-like wings and webbed feet which make them good swimmers. This also helps in catching their prey (fish).

Q2. **Why is it difficult to predict the weather of a place, while it is easy to predict its climate?**

A. Weather is the day-to-day condition of the atmosphere at a place with respect to the temperature, humidity, rainfall, etc. It is a complex phenomenon which can vary over a short period of time and thus, it is difficult to predict the weather of a place. On the

contrary, it is easier to predict climate as it is the average weather pattern taken for a long time.

Q3. **Differentiate between:**

a. **Weather and climate**

b. **Humidity and rainfall**

c. **Climates of polar region and tropical rainforest**

A. a. **Weather** is the day to day condition of the atmosphere at a place with respect to the temperature, humidity, rainfall and wind speed etc. While climate is the average weather pattern of a place.

b. **Humidity** indicates the wetness of a place due to the presence of moisture in the atmosphere, while rainfall is the drops of water that falls from clouds on the ground**.**

c. Polar region remains very cold for most part of the year, whereas tropical rainforest is hot and humid.

Q4. **Why do birds in cold climate migrate to warmer regions in winter?**

A. Birds in cold climate migrate to warmer regions in winter because birds must remain warm to survive.

Q5. **Name various instruments used for measuring different weather elements.**

A. i. Maximum and minimum thermometer- To measure maximum and minimum temperature.

ii. Rain gauge- To measure rainfall.

iii. Hygrometer- To measure humidity.

iv. Anemometer- To measure wind speed

Q6. **Write some adaptations of animals living in tropical rain forests.**

A. Some adaptations of animals living in tropical rain forests such as living on trees, development of strong tails, long and large beaks, bright colours, sharp patterns, loud voice, diet of fruits, sensitive hearing, sharp eyesight, thick skin, ability to camouflage in order to protect themselves from predators.

Q7. **Why do many fish and insects also migrate?**

A. Many types of fish (salmon and anadromous) and insects(butterfly) also migrate seasonally in search of more hospitable climate (encourages the existence of development)

CLASS -VII		
CH. No.:	**CHAPTER NAME**	**LINK FOR THE PRESENTATION**
1	Nutrition in Plants	https://drive.google.com/file/d/1ACdGBitlW8q3fbtseSetJOsuWxEI_iUO/view?usp=sharing
2	Nutrition in Animals	https://drive.google.com/file/d/1pzhtc9qk_P3pk58IMYBRutqh-ytvc6xL/view?usp=sharing
3	Fibre to Fabric	https://drive.google.com/file/d/1Mhbd3UJcGs4uXmQh9tpRDDRBU8x9UDZQ/view?usp=sharing
4	Heat	https://drive.google.com/file/d/1oqDYhZh9FZcDhG0MUOecFBIM7L9OUqNV/view?usp=sharing
5	Acids, Bases and Salts	https://drive.google.com/file/d/1rBGsD5luQzuXyBjMofmGW4aDIrVA6YwX/view?usp=sharing
6	Physical and Chemical Changes	https://drive.google.com/file/d/1h4E7Ma_2worz2lfYMb7ffJTl0bXO1KYj/view?usp=sharing
7	Weather, Climate and Adaptations of Animals to Climate	https://drive.google.com/file/d/1lx2eR-qqxKjOYdhNayW_ZzN78ig8TrDY/view?usp=sharing
8	Winds, Storms and Cyclones	https://drive.google.com/file/d/17XMxLyERIrqhwEEdlXbBNOXEUFxXUq3v/view?usp=sharing
9	Soil	https://drive.google.com/file/d/1mkEzM9nfVmAPVBYZeGGHpjxf9bXAlcv8/view?usp=sharing

CHAPTER-8
WINDS, STORMS AND CYCLONES

Text Book Exercise

Q1. **(Discussed and done in textbook)**

Q2. **Suggest two methods to find out wind direction at given place.**

A. Two methods to find out wind direction at a given place are:
(i)Take some sand and release it from height. The direction in which the sand starts flowing is the direction of the wind.
(ii) Flying kite, also tells us the direction of wind at one place.

Q3. **State two experiences that made you think that air exerts pressure(other than given in the text)**

A. (i) When we fill air in a balloon it inflates due to pressure exerted by air. Also when it is overfilled with air it bursts due to excess air pressure.
(ii) When we hang a banner in a place of moving fast air, it tears due to the pressure exerted by the air.

Q4. **You want to buy a house. Would you like to buy a house having windows but not ventilators? Explain answer.**

A. Ventilators are important for the circulation of air. Warm air is lighter which rises up and exit from the ventilators. Cool air is heavier and thus move in through window making the room comfortable for living.

Q5. **Explain, why holes are made in hanging banners and hoardings?**

A. Holes are made in hanging banners and hoardings in order to tackle the air pressure. The air get passed through these holes made on the hoardings or banners and thus it reduces the pressure of air on them. Therefore, the hoardings do not get blown away or torn due to air pressure.

Q6. **How will you help your neighbours in case cyclone approaches your village/town?**

A. I will help by following ways:
(i) By warning everyone about the coming danger.
(ii) Searching for shelter.
(iii) Keeping storage of water and food.
(iv) Setting up first aid facility.

Q7. **What planning is required in advance to deal with the situation created by a Cyclone?**

QA. (i) Setting up cyclone warning system.
(ii) Setting up cyclone shelter.
(iii) Setting up food and water storage.
(iv) Setting up first aid facility.

Q8 & Q9.(Discussed in class and done in textbook)

Assignment Questions

Q1. **Define:**

- **a.** **Thunderstorm**
- **b.** **Cyclone**
- **c.** **Tornado**
- **d.** **Monsoon winds**

A. **a.** The movement of falling water along with lightning, heavy rain, thundering and strong winds is called thunderstorm. Thunderstorm occurs frequently in hot and humid tropical area, such as India

b. A cyclone is a storm which develops on the sea and has high speed winds swirling around a low pressure centre called the eye of the storm.

c. A tornado is a violent storm with very strong circular winds over a small area

d. Periodic winds that carry winds and bring rain, and flow from ocean to land called monsoon winds.

Q2. **Why is Chandigarh unlikely to be affected by a cyclone?**

A. Chandigarh is unlikely to be affected by a cyclone because it is not near the sea or ocean

Q3. **Name the ocean which is mainly responsible to bring rain bearing monsoon winds to Kerala coast in June every year.**

A. Indian ocean is mainly responsible to bring rain bearing monsoon winds to Kerala coast in June every year.

Q4. **To expel hot air out of the kitchen, A has an exhaust fan fitted on the window of her kitchen and B has a similar exhaust fan fitted on the wall near the ceiling of her kitchen.**
Which of the exhaust fan will expel the hot air more effectively? Explain why?

A. B's exhaust fan will expel the hot air more effectively because hot air rises up and her fan is at greater height than A's.

Q5. **Why is it advisable not to shut all the doors and windows during a storm?**

A. During storms, heavy winds passing over the house creates a low pressure. The high pressure inside the house tries to fill the low pressure outside. Since, this pressure is stuck inside the house. Therefore, it pushes or lifts the roof off. So, unless the house is well ventilated, the roof is more likely to blow off in a strong wind.

Q6. **A flat in Mumbai with a balcony facing the sea has some clothes hung on a clothes line in the balcony. Towards which direction, the clothes will be blown in the afternoon? Explain it**

A. In the afternoon, the land gets heated faster than the water. The air over the land becomes hotter and rises up, creating a drop in pressure. This causes the winds to flow from the sea towards the land. Thus, the clothes will be blown towards the house because of sea breeze flowing towards the land.

Q7. **When strong/high speed wind blows, an umbrella held upright at times gets upturned. Explain the reason.**

A. High speed wind passing over the umbrella creates low pressure above the umbrella. Therefore, the pressure below the umbrella upturns it.

Q8. **Suggest some precautions to be taken to prevent the roof of a tin sheet from flying away during a fierce wind storm.**

A. Some precautions are:

i. Put heavy stones on it.

ii. Screw it tight.

CHAPTER-9
SOIL

Text Book Exercise

Q1 to Q3(Discussed and done in textbook)

Q4. Explain how soil is formed?

A. The soil is formed by the process of weathering in which the rocks break down by the action of wind, water and climate. It is a very slow process and big rocks get converted into soil.

Q5. How is clayey soil useful for crops?

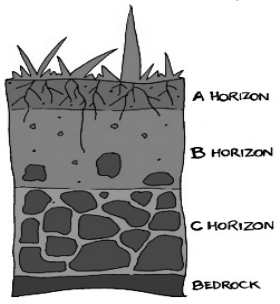
A. Clayey soil is very useful for crops because:
(i) It has very good water retaining capacity.
(ii) This soil is rich in humus and is very fertile.
(iii)It contains useful organic minerals.
These properties of clayey soil is very useful for growing crops.

Q6. List the difference between clayey soil, loamy soil and sandy soil.

Clayey Soil	Sandy Soil	Loamy Soil
i. Proportion of fine particle is large.	i. Proportion of big particles is large	i. Proportion of fine and big particles is almost same.
ii. It has least percolation rate of water.	ii. It has highest percolation rate of water.	ii. It has more percolation rate than clayey soil and lesser than sandy soil.
iii. It has highest water holding capacity	iii. It has least water holding capacity.	iii. It has right water holding capacity.

Q7. Sketch the cross section of soil and label the various layers.

A.



A vertical section through different layers of the soil is called the soil profile. Each layer differs in feel (texture), colour, depth and chemical composition. These layers are referred to as horizons.

1. The uppermost horizon is generally dark in colour as it is rich in humus and minerals. The humus makes the soil fertile and provides nutrients to growing plants. This layer is generally soft, porous and can retain more water. It is called the topsoil or the A horizon.

2. The next layer has a lesser amount of humus but more of minerals. This layer is generally harder and more compact and is called the B-horizon or the middle layer.

3. The third layer is the C-horizon, which is made up of small lumps of rocks with cracks and crevices.

4. Below this layer is the bedrock, which is hard and difficult to dig with a spade

Q8. Razia conducted an experiment in the field related to the rate of percolation. She observed that it took 40 minutes for 200 ml of water to percolate through the soil sample. Calculate the rate of percolation.

A. Time taken for percolation = 40 min

We know that,

Rate of percolation(ml/min)=amount of water/percolation time

200/40=5 ml/min

Q9. Explain how soil pollution and soil erosion could be prevented?

A. (i) Plantation should be encouraged because plant roots firmly bind the soil and help in preventing erosion.

(ii) Methods like crop rotation and mixed farming should be followed.

(iii) Use of organic fertilizers and manure instead of synthetic.

(iv) Pesticides and insecticides should be used in limited quantity and find natural way to prevent it.

(v) Plastic bags should be banned because it doesn't decompose and gives rise to soil pollution.

(vi) Industrial waste shouldn't be dumped directly as it kills necessary micro organisms of soil.

Assignment questions

Q1. Which of the following situations — 'A' or 'B' — is advantageous for absorption of water and minerals? Why?

Situation 'A': Growth and branching of roots in the C-horizon.

Situation 'B' : Growth and branching of roots in A and B-horizons

A. Situation 'B' is advantageous for absorption of water and minerals.

This is because A-horizon is top layer of soil and is rich in minerals and humus. The plant roots grow in the topsoil. The roots of some of the trees are however, able to reach B horizon (subsoil). Subsoil is also rich in soluble minerals.

Q2. Is it a good practice to remove grass and small plants that are growing in an open unused field? Give reason to support your answer.

A. No, it is not a good practice to remove grass and small plants growing in an open, unused field because the plants cover the soil surface.

Their roots bind the soil particles, holding and adhering them in place.

It helps in preventing the topsoil from being washed off during heavy rain, floods and winds.

In this way, soil erosion is prevented and top soil layer is preserved for growing

Q3. Continuously water-logged soils are disadvantageous for plant growth. Why?

A. 1. Roots although underground possesses living cells that require oxygen for respiration and production of energy.

2. They absorb oxygen that is present in the spaces between soil particles. But in water-logged soils, water occupies spaces between soil particles and pushes the oxygen out into the atmosphere.

3.Thus, roots are deprived of oxygen and this affects the plant growth

Q4. Explain, why government is banning the use of polythene bags?

A. Polythene bags and plastics pollute the soil. They also kill the organisms living in the soil. That is why there is a demand to ban polythene bags and plastics.

Q5. Define soil and its various constituents

A. A mixture of rock particles and humus is called soil.

Its various constituents are:

i Rock particles- It constitute 90%by weight of soil.

ii Humus- increases its water holding capacity.
Iii Water- helps the plants to take dissolved minerals.
iv. Air- helps the soil loose and fit for ploughing.
v. Microorganisms- convert dead and decayed matter in to humus.

Q6. Why is the earthworm referred as a farmer's friend?

A. Earthworms improve the quality of soil by mixing its layers and making the soil plough able

Q.7 Define the following:

1. Soil erosion: The removal of fertile top-soil from land by wind or water is called soil erosion.
2. Humus: The organic matter formed by the decomposition of dead plants and animals by the micro-organisms (like certain bacteria and fungi) is called humus.