

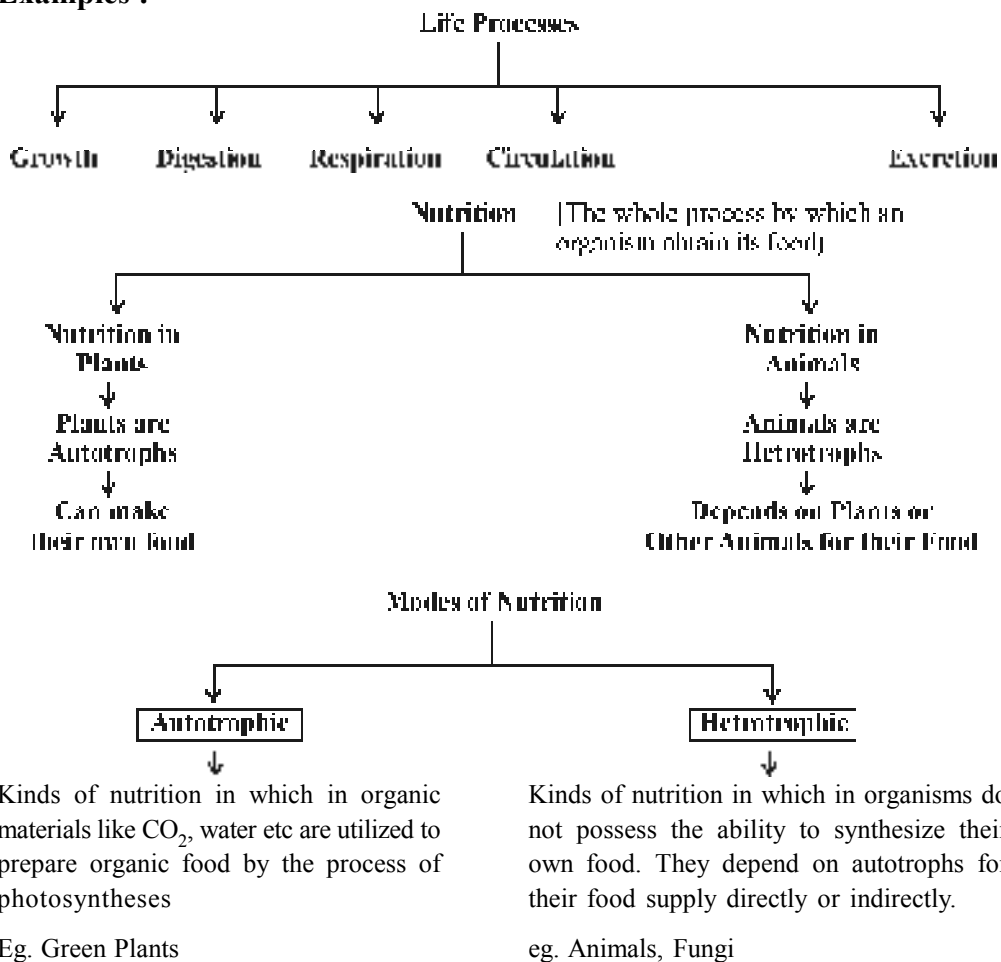
CHAPTER – 6

LIFE PROCESSES

All living things perform certain life processes like growth, excretion, respiration, circulation etc.

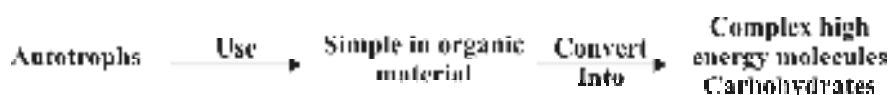
All the processes like respiration, digestion, which together keep the living organisms alive and perform the job of body maintenance are called life processes.

Examples :



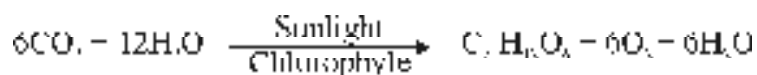
Autotrophic Nutrition :

The organisms which carry out autotrophic nutrition are called autotrophs (green plants)



Autotrophic nutrition is fulfilled by the process by which autotrophs take in CO_2 and H_2O and convert these into carbohydrates in the presence of chlorophyll, sunlight is called PHOTOSYNTHESIS

Equation :



Raw Materials for Photosynthesis :

- Sunlight
- Chlorophyll \rightarrow Sunlight absorbed by chlorophyll
- CO_2 \rightarrow enters through Stomata, and Oxygen (O_2) is released as by product through stomata on leaf.
- Water \rightarrow water + dissolved minerals like Nitrogen phosphorous etc are taken up by the roots from the soil.

Site of Photosynthesis :

Chloroplast in the leaf. Chloroplast contain chlorophyll. (green pigment)

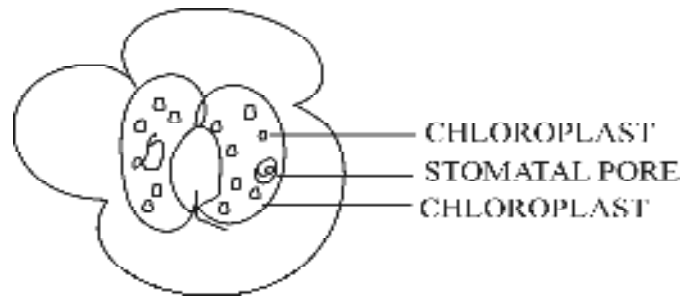
Main Events of Photosynthesis :

- Absorption of light energy by chlorophyll
- Conversion of light energy into chemical energy + splitting (breaking) of water into hydrogen and oxygen.
- Reduction of CO_2 to carbohydrates.

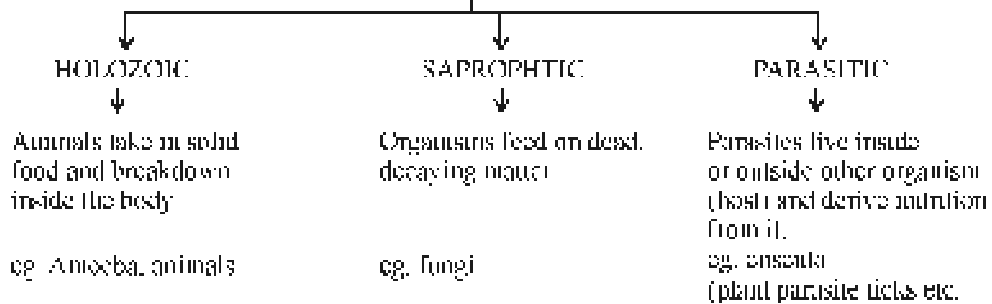
STOMATA : Tiny pores present on the surface of the leaves

FUNCTIONS :

- (i) Exchange of gases O_2/CO_2
- (ii) Loses large amount of water [water vapour] during transpiration.



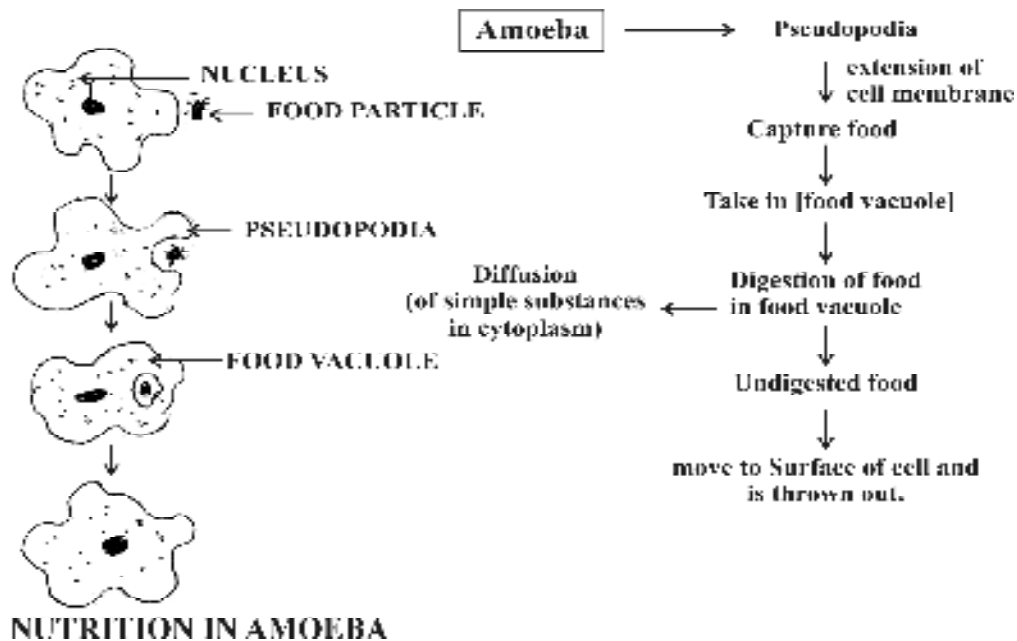
Heterotrophic nutrition

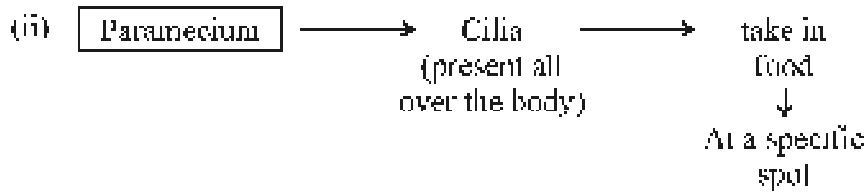


How do organisms obtain their food

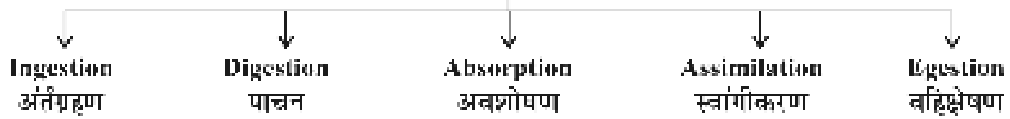
Unicellular / single celled organism : food is taken up through entire surface.

Example : (i) Amoeba. (ii) Paramecium



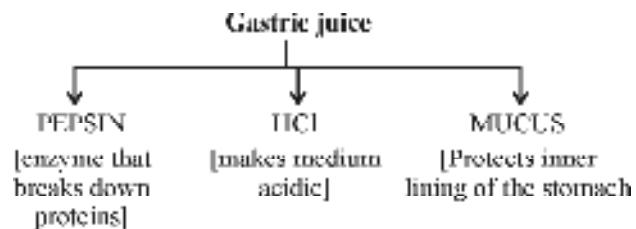
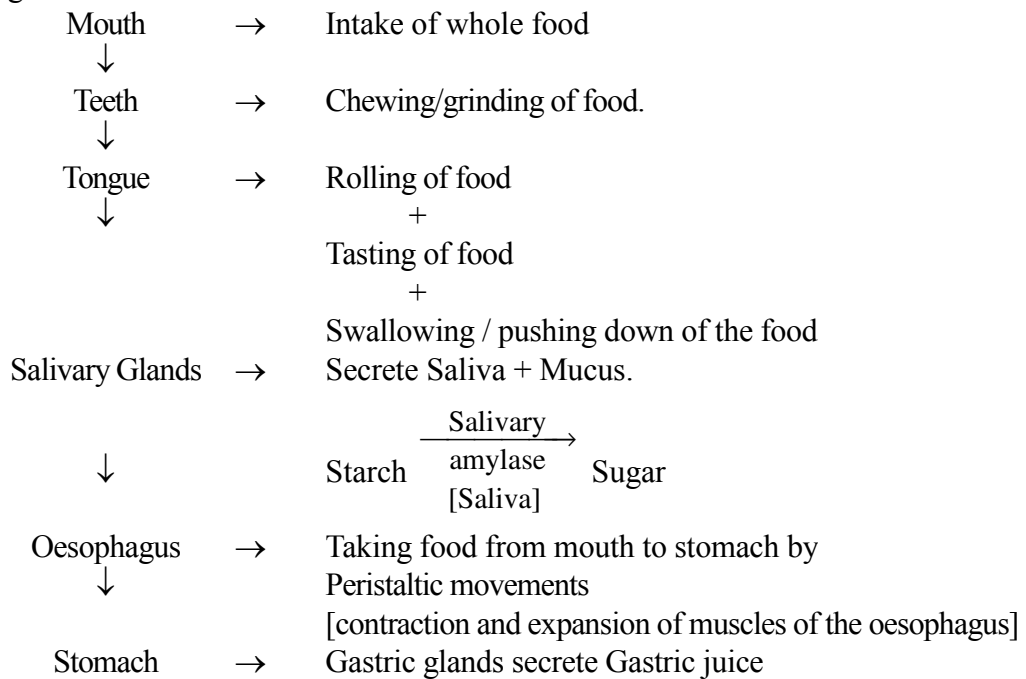


Steps in Holocoe nutrition.

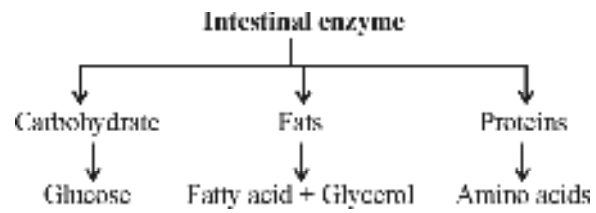


NUTRITION IN HUMAN BEINGS

The human digestive system comprises of alimentary canal and associated digestive glands.

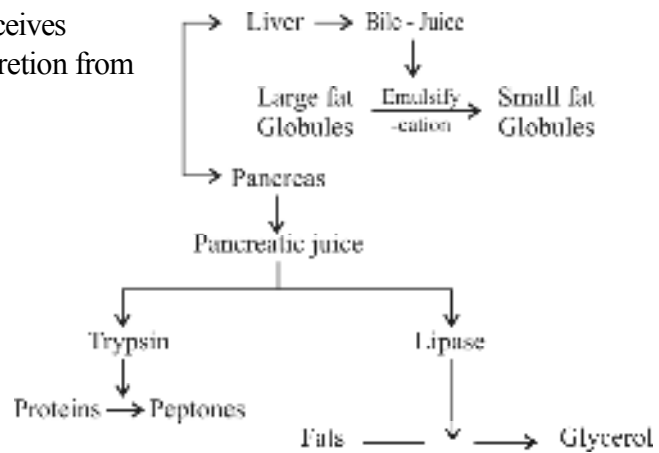


Small Intestinal →



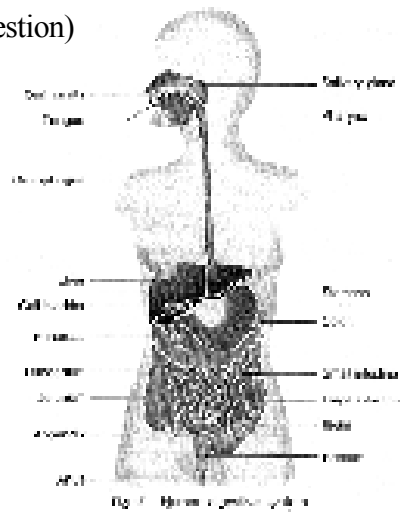
Small Intestine → Villi → helps in absorption of food into the blood. [finger like projections]

small intestine → Receives secretion from



Emulsification : The process of breakdown of large fat globules into smaller fat globules by bile juice.

Large intestine → Absorb excess of water.
 → The rest of the material is removed from the body via the anus. (Egestion)

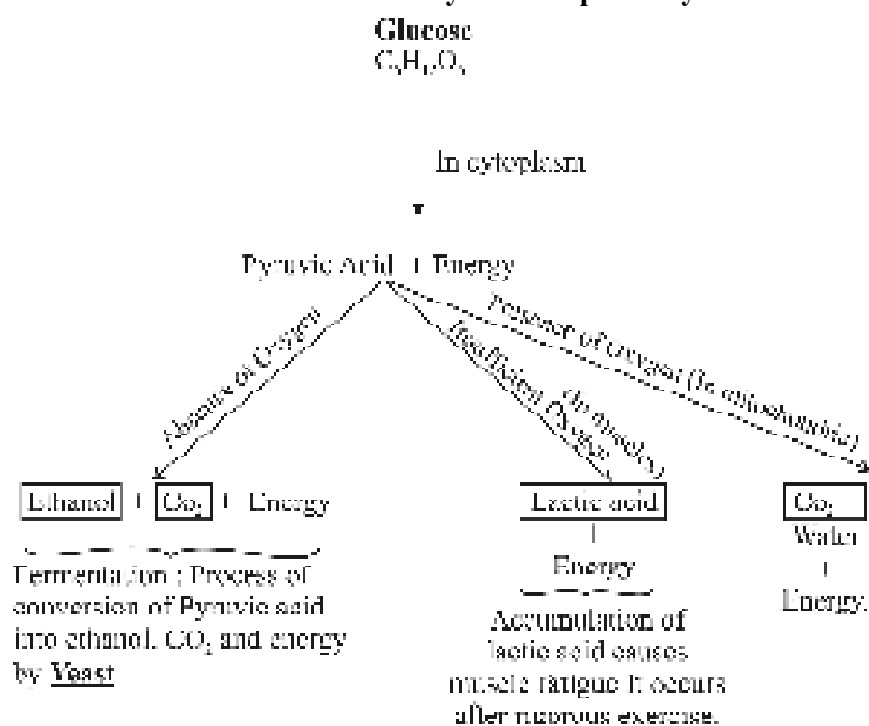


Respiration

Respiration involves

- (i) Gaseous exchange : Intake of oxygen from the atmosphere and release of $\text{CO}_2 \rightarrow$ Breathing
- (ii) Breakdown of simple food in order to release energy inside the cell \rightarrow Cellular Respiration

Breakdown of Glucose by various pathways



Respiration

↓

Aerobic

- * Takes place in the presence of oxygen
- * Occurs in mitochondria
- * End products are CO_2 and H_2O
- * More amount of energy is released

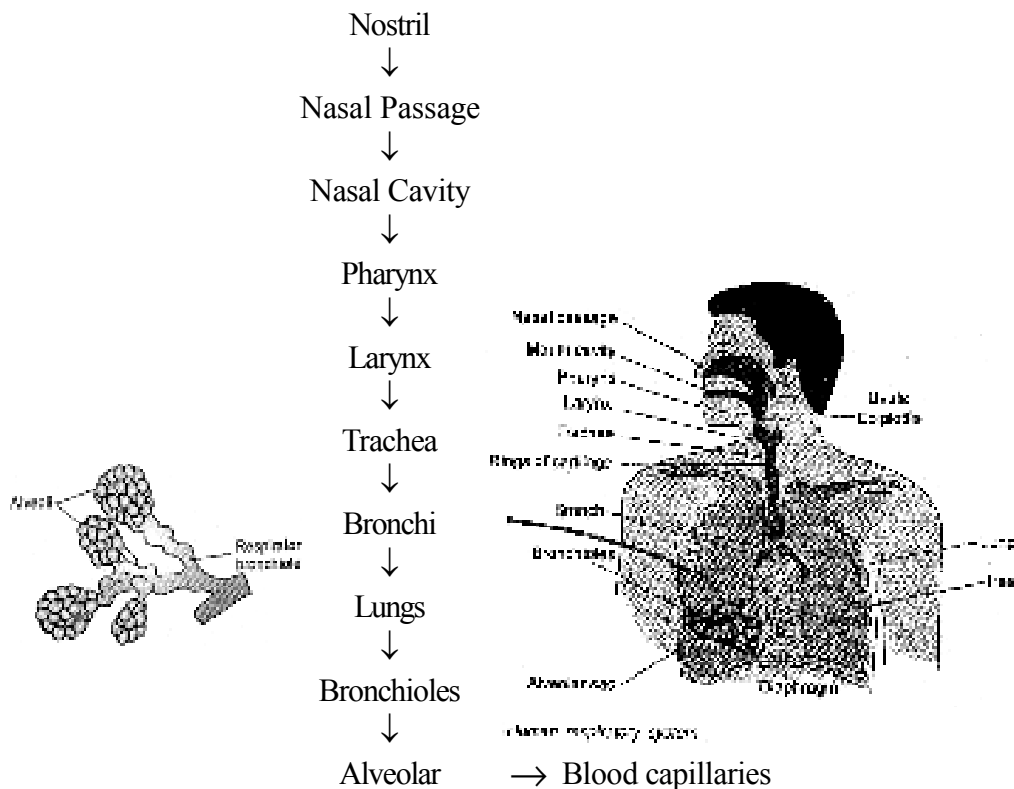
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Anaerobic

- * Takes place in the absence of oxygen
- * Occurs in cytoplasm
- * End products are alcohol or lactic acid.
- * Less amount of energy is released.

Human Respiratory System

Passage of air through the respiratory system.



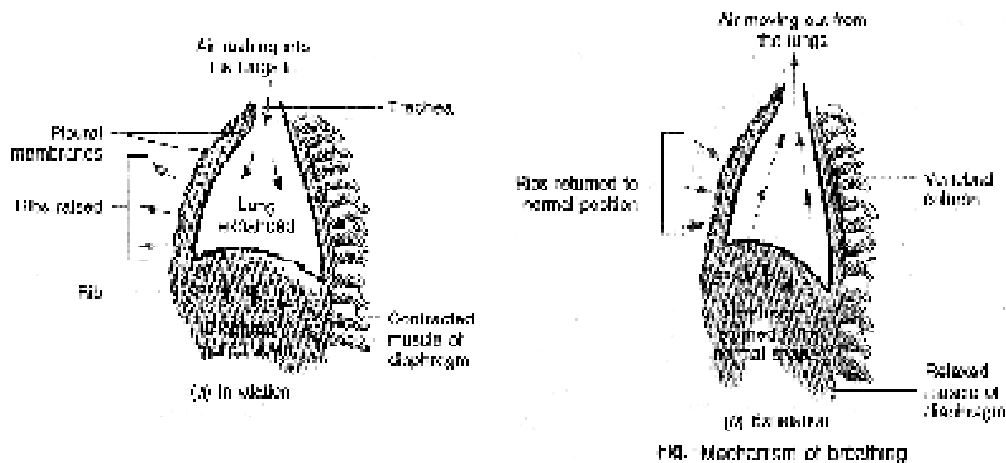
Mechanism of Breathing

Inhalation

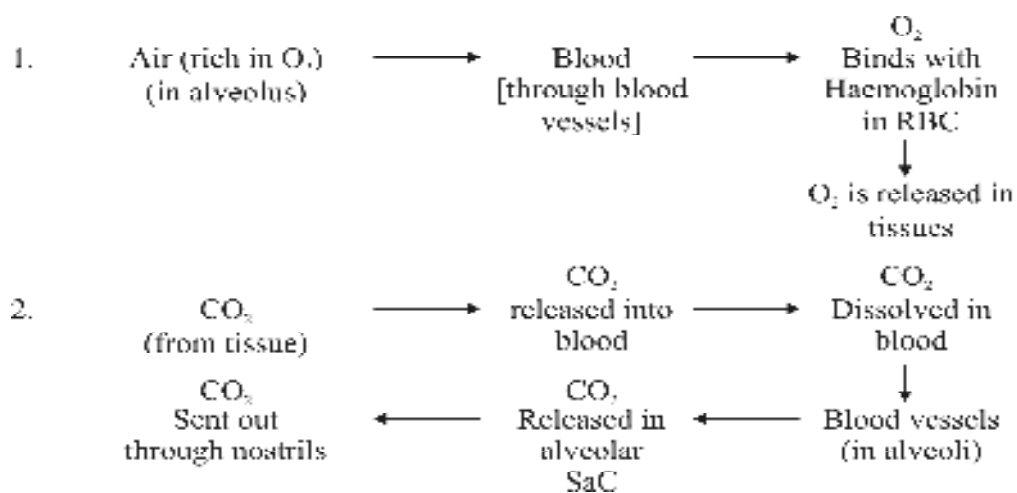
- * During inhalation the thoracic cavity (chest cavity) expands
- * Ribs lift up
- * Diaphragm become flat in shape
- * Volume of lungs increases and air enters the lungs

Exhalation

- * Thoracic cavity contracts
- * Ribs move downwards
- Diaphragm becomes dome shaped
- * Volume of lungs decreases and air exits from the lungs.



Exchange of Gases between alveolus, blood and tissues.



Terrestrial Organism – use atmospheric oxygen for respiration

Aquatic Organisms – used dissolved oxygen for respiration

Respiration in Plants :

Respiration in plants is simpler than the respiration in animals. Gaseous exchange occur through

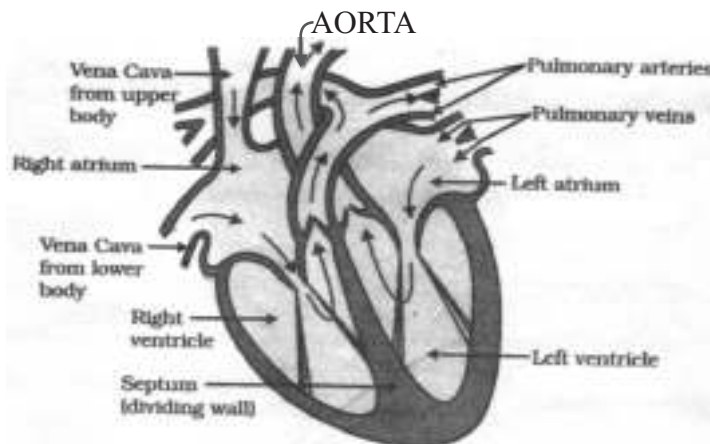
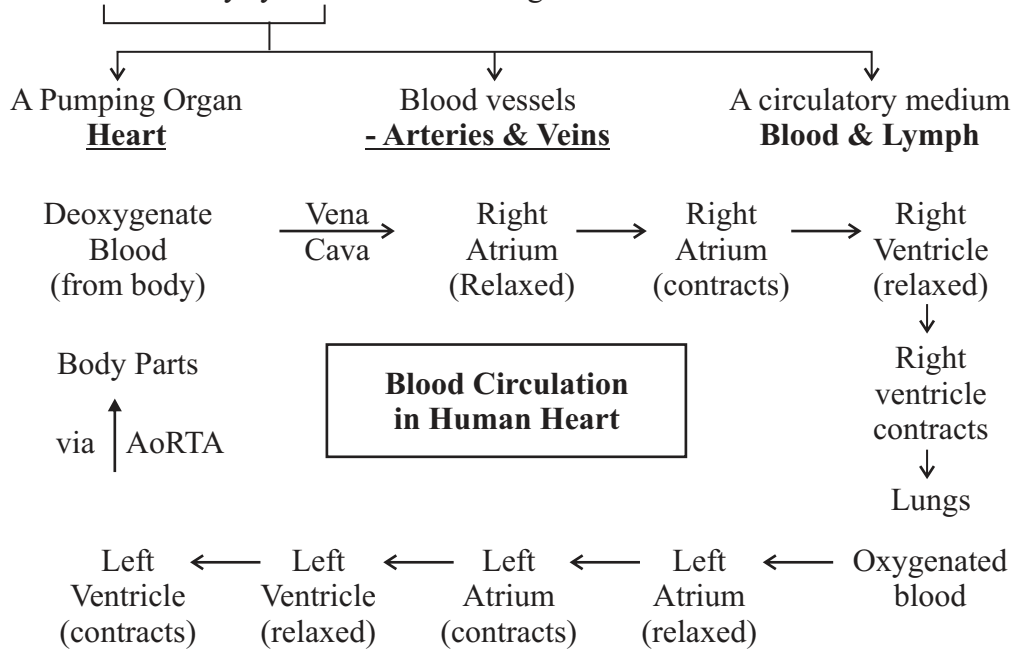
1. Stomata in leaves
2. Lenticels in stems
3. General surface of the roots.

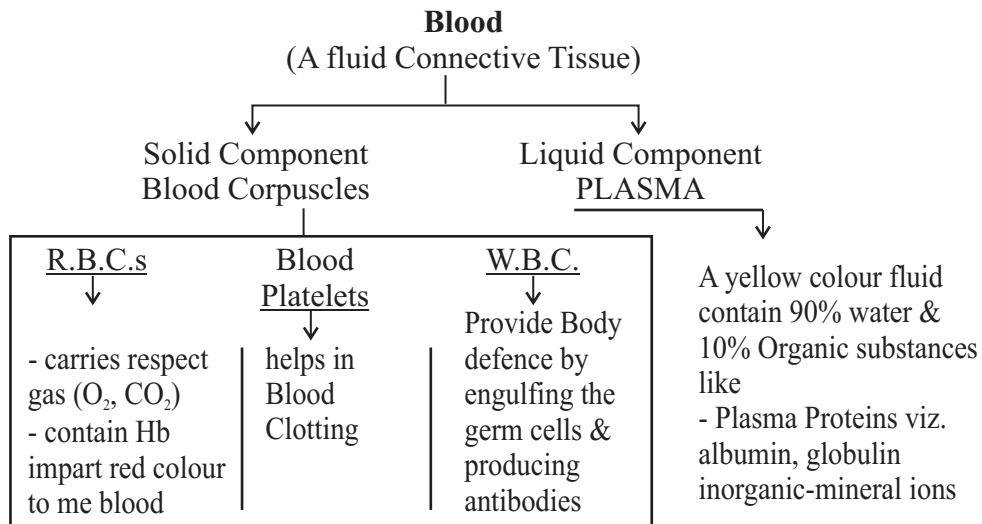
Life Process (II)

Transpiration and Excretion

- Human beings like other multicellular organism need regular supply of food, oxygen etc., This function is performed by circulatory system or Transport system.
- The circulatory system in human beings consists of :

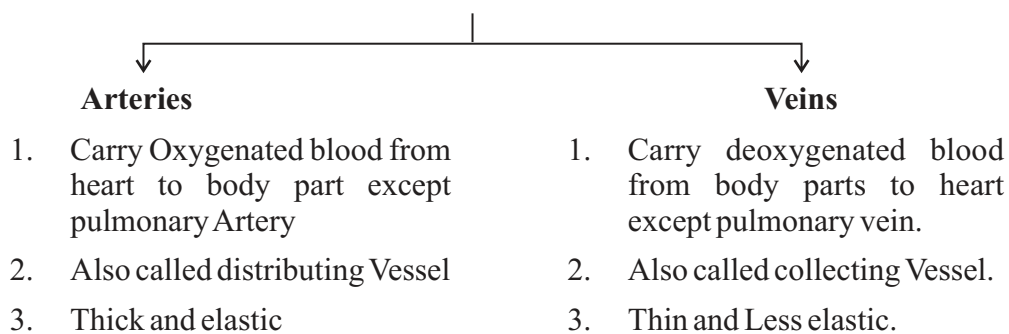
The circulatory system in human beings consists of :





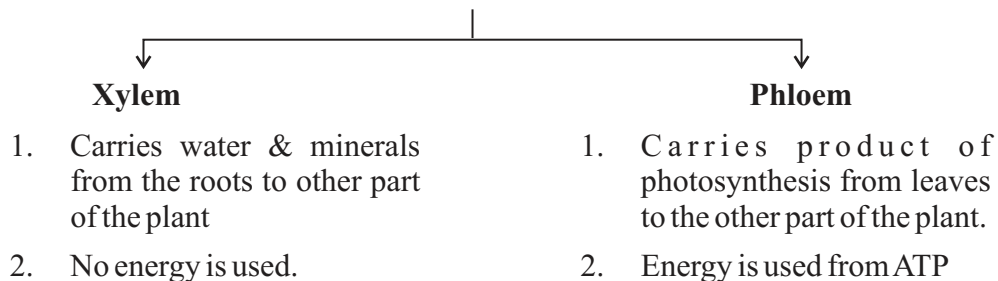
- Lymph - a yellowish fluid escapes from the blood capillaries into the intercellular spaces contain less proteins than blood. Lymph flows from the tissues to the heart assisting in transportation and destroying germs.

Blood Vessels



Transportation in Plants

- There are two main conducting Pathways in a Plant



- Transpiration is the process of loss of water as vapour from aerial parts of the plant.

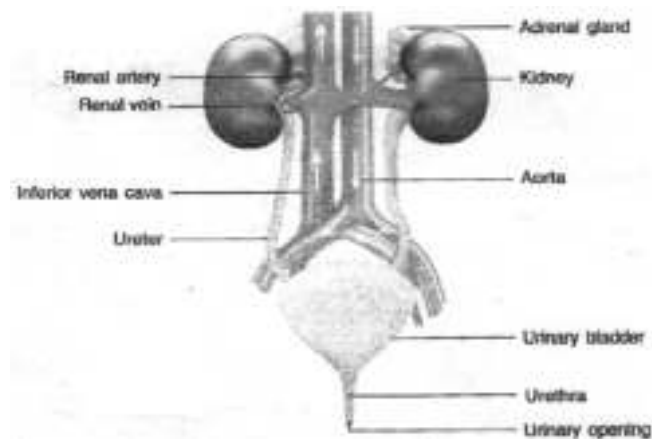
Function :

1. Absorption and upward movement of water and minerals by creating PULL.
 2. helps in temperature regulation in Plant.
- Transport of food from leaves (food factory) to different part of the plant is called Translocation.

EXCRETION

- The process of the removal of the harmful metabolic wastes from the body.
- Excretory system of human beings includes :

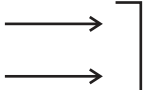
- 1) A pair of kidneys
- ii) A Urinary Bladder
- iii) A pair of Ureter
- iv) A Urethra



- Urine produced in the kidneys passes through the ureters into the urinary bladder where it is stored until it is released through the urethra.
- The purpose of making urine is to filter out waste product from the blood i.e., urea which is produced in the liver.
- Each kidney has large numbers of filtration units called nephrons.
- The Urine formation involves three steps
 1. **Glomerular Filtration** : Nitrogenous wastes, glucose water, amino acid filter from the blood into Bowman Capsule of the nephron.
 2. **Tubular reabsorption** : Now, useful substances from the filtrate are reabsorbed back by capillaries surrounding the nephron.
 3. **Secretion** Extra, water, salts are secreted into the tubule which open up into the collecting duct & then into the ureter.

- Haemodialysis : The process of purifying blood by an artificial kidney. it is meant for Kidney failure patient.

Excretion in Plants

- Oxygen, CO₂ & H₂O  Through stomata (Transpiration)
- Other wastes may be stored in leaves, bark etc. which fall off from the plant.
- Plants excrete some waste into the soil around them.
- Gums, Resin → In old Xylem
- Some metabolic wastes in the form of crystals of Calcium oxalates in the leaves of colocasia and stem of Zamikand.

Life Processes

EXERCISE

(Question Bank)

Very Short Answers (1 Mark)

1. State one difference between autotrophic and heterotrophic mode of nutrition.
2. What will happen to a plant if the xylem is removed.
3. What is the role of saliva in the digestion of food?
4. Name the tissue that transports water and minerals in plants.
5. What is the role of acid in our stomach?
6. What is emulsification
7. Name the organelle in which photosynthesis occur.
8. Name the largest artery in the human body.
9. Define transpiration
10. What are structural and functional unit of kidneys called.

Short Answers (2 Marks or 3 Marks)

1. How is small intestine designed to absorb digested food?
2. What are stomata? Draw a labelled diagram of stomata.

3. Write the equation for the process of breakdown of glucose in a cell
 - i) in the presence of oxygen
 - ii) in the absence of oxygen.
4. Write the difference between inhalation and exhalation.
5. List the three events which occur during photo synthesis.
6. How does transpiration helps in upward transport of substances.
7. Describe the process of double circulation in human beings.
8. Write the functions of the components of blood.

Long Answers (5 Marks)

1. Explain the process of digestion of food in mouth stomach and small intestine in human body. Draw a well labelled diagram.
2. Draw a diagram showing Human Respiratory system. Label the following parts
 - i) Larynx
 - ii) Trachea
 - iii) Bronchus
 - iv) Lungs

CHAPTER – 1

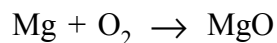
Chemical Reactions and Equations

- **Chemical Reaction** : – Whenever a chemical change occurs we can say that a chemical reaction has taken place

eg – Food gets digested in our body
– Rusting of iron.

- **Chemical Equation** :– A chemical reaction can be expressed symbolically by using chemical equation

eg magnesium is burnt into air to form magnesium oxide can be represented as

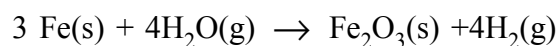


– We can observe or recognise a chemical reaction by observing change in state, colour, by evolution of gas or by change in temperature.

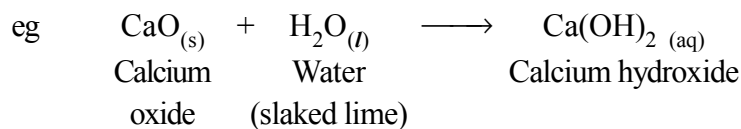
- Physical state of the reactant and products are mentioned to make chemical reaction more informative. eg we use (g) for gas, (l) for liquid, (s) for solid and (aq) for aqueous.

- **Balancing Equation** :– We balance the chemical equation so that no. of atoms of each element involved in the reaction remain same at the reactant and product side.

eg $\text{Fe} + \text{H}_2\text{O} \rightarrow \text{Fe}_2\text{O}_3 + \text{H}_2$ can be written as

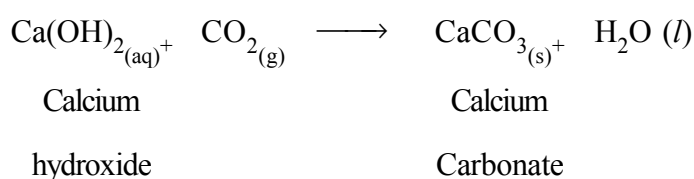


- **Combination Reaction** :– The reaction in which two or more substances combine to form a new single substance



Quick lime

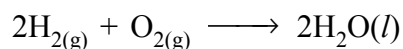
- Ca(OH)_2 slaked lime is used for white washing walls. It reacts with CO_2 to form CaCO_3 and gives a shiny finish to the walls.



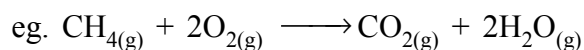
- Burning of Coal



- Formation of water



- **Exothermic Reactions** :- Reaction in which heat is released along with the formation of products.



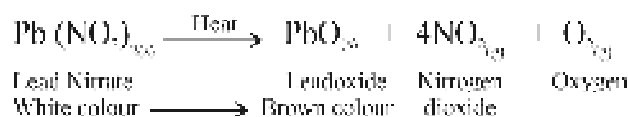
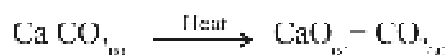
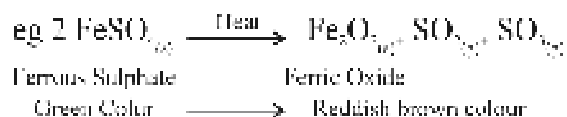
- Respiration is also exothermic reaction.
- Decomposition of vegetable matter into compost.

- **Decomposition Reactions** :- The reaction in which a single substance decomposes to give two or more substances. Decomposition reactions can be of three types

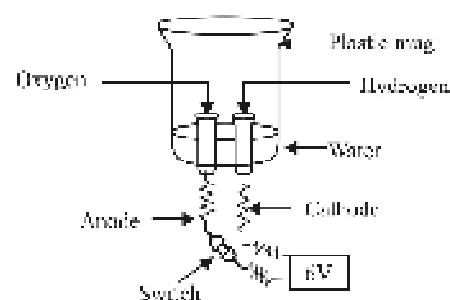
Thermal Decomposition :- When a decomposition reaction is carried out by heating

Decomposition Reactions

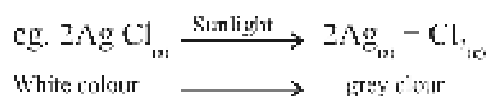
→ **Thermal Decomposition :-** When a decomposition reaction is carried out by heating



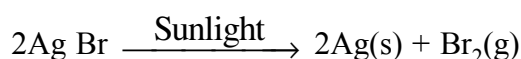
→ **Electrolytic Decomposition :-** When a decomposition reaction is carried out by electric current,



→ **Photolytic decomposition :-** When a decomposition reaction is carried out by light

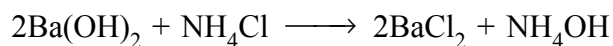


- Silver bromide behaves similarly

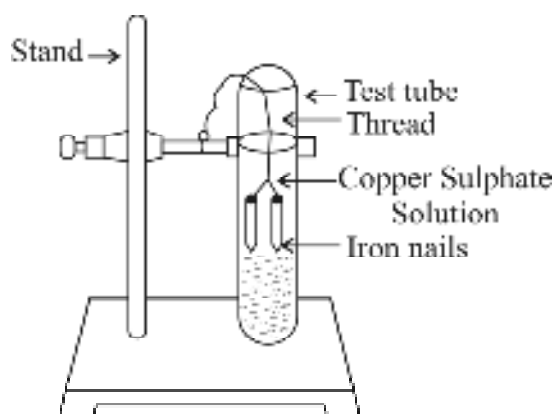
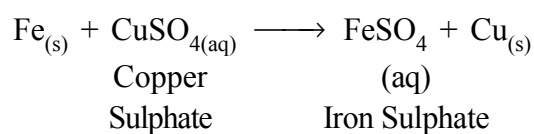


- The above two reactions are used in black and white photography.

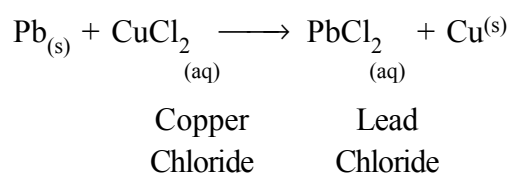
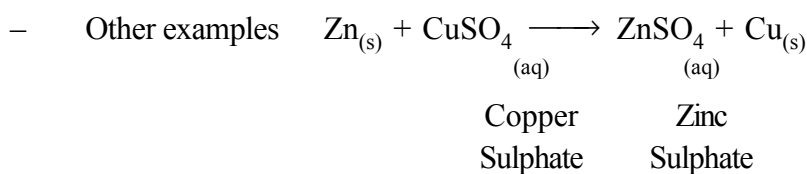
- **Endothermic Reactions** – The reactions which require energy in the form of heat, light or electricity are called Endothermic Reactions.



- **Displacement Reaction** : The chemical Reaction in which an element displaces another element from its solution

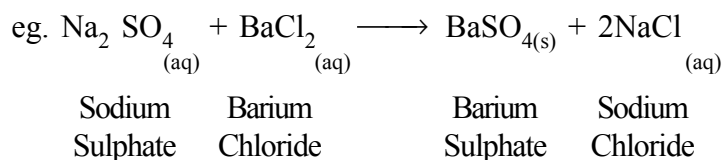


- The nail becomes brownish in colour and the blue colour of Copper Sulphate solution fade.



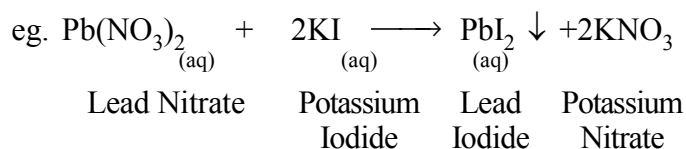
- Zinc and lead are more reactive elements than copper. They displace copper from its compounds.

- **Double Displacement Reaction :** The reaction in which two different atoms or group of atoms are mutually exchanged

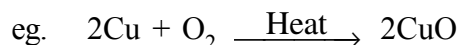


A white substance is formed due to above reaction. The insoluble substance is called precipitate.

Precipitation Reaction – Any reaction that produces a precipitate is called a precipitation reaction.



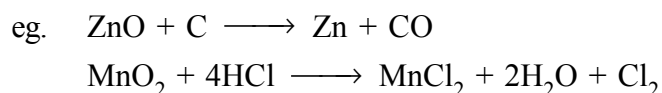
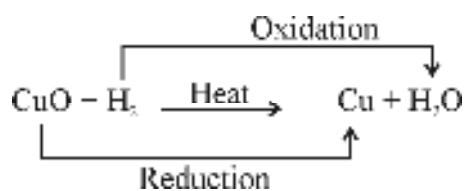
- **Oxidation :** Oxidation is the gain of oxygen or loss of hydrogen



When Copper is heated a black colour appears. If this CuO is reacted with hydrogen gas then again Cu becomes brown as reverse reaction takes place



- **Reduction :** Reduction is the loss of oxygen or gain of hydrogen.
- **Redox Reaction :** The reaction in which one reactant gets oxidised while other gets reduced



- **Corrosion** : When a metal is attacked by substances around it such as moisture, acids etc.
eg. Reddish brown coating on iron.
(ii) Black coating on Silver.
- **Rancidity** : When fats and oils are oxidised they become rancid and their smell and taste change.
- Antioxidants are added to foods containing fats and oil.

EXERCISE

(Question Bank)

(1 Mark)

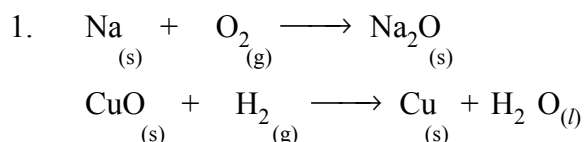
Answer the following questions very briefly

1. What happens when the milk is left at room temperature during summer?
2. Write a chemical equation when magnesium is burnt in air to give magnesium oxide.
3. A substance under goes chemical reactions to produce simpler products, what type of reaction is this?
4. Why do copper vessels lose their shine when exposed to air?
5. Which gas is produced by the action of dilute hydrochloric acid on zinc granules?
6. $\text{Fe}_2\text{O}_3 + 2\text{Al} \longrightarrow \text{Al}_2\text{O}_3 + 2\text{Fe}$
The above reaction is an example of which type of reaction.
7. Name the type of reaction in which energy is absorbed.
8. Why does the colour of copper sulphate solution change when an iron nail is dipped into it?
9. Give an example of decomposition reaction which proceeds by absorbing electric energy.
10. Why do we balance the chemical equation?

Answer the following questions briefly

(2 mark)

1. Write down the observations which indicate the occurrence of a chemical reaction.
2. Why is respiration considered as an exothermic reaction? Explain.
3. Transfer the following statements into Chemical equations and then balance them.
 - a) Hydrogen gas combines with nitrogen to form ammonia.
 - b) Potassium metal reacts with water to give potassium hydroxide and hydrogen gas.
4. Identify the substances that are oxidised and the substances that are reduced to the following reactions.



5. What happens when silver chloride is exposed to sunlight? Give one practical application of this reaction. Write the equation also.
6. Why is the bag used for potato chips flushed with nitrogen gas?

Answer the following questions in detail

(3 marks)

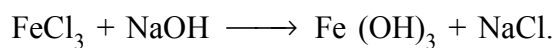
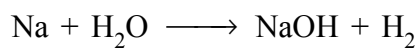
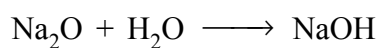
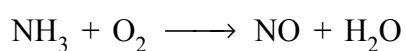
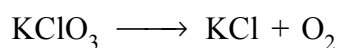
1. Write down the balanced chemical equations for the following reactions.
 - a) Zinc Carbonate_(s) \longrightarrow Zinc Oxide + Carbon Dioxide_(g)
 - b) Aluminium_(s) + Chlorine_(g) \longrightarrow Aluminium Chloride_(s)
 - c) Magnesium_(s) + Water_(l) $\xrightarrow{\text{Heat}}$ Magnesium Hydroxide_(l) + Hydrogen_(g)
2. Choose combination, displacement and double displacement reactions out of the given reactions.
 - i) $\text{MnO}_{2(s)} + 4\text{HCl}_{(l)} \longrightarrow \text{MnCl}_{2(s)} + \text{Cl}_{2(g)} + 2\text{H}_2\text{O}_{(l)}$
 - ii) $\text{CaO}_{(s)} + \text{CO}_{2(g)} \longrightarrow \text{CaCO}_{3(s)}$
 - iii) $2\text{AgCl}_{(s)} \longrightarrow 2\text{Ag}_{(s)} + \text{Cl}_{2(g)}$

3. What happens when $\text{CO}_2^{(g)}$ is passed through slaked lime? Write the balanced chemical equation. Write the type of reaction that has occurred.

Explain the following questions detail

(5 marks)

1. Balance the following chemical equation and identify the type of reaction they represent



2. Define various types of chemical reactions. Write one chemical equation for each type.

CHAPTER 1

A LETTER TO GOD

I have given only the questions below. Kindly go through the guide books and write down the answers faithfully. In case, you find any difficulties in answering, please do contact me personally.

I. Answer the following questions in one or two sentences:

- 1) What did Lencho hope for?
- 2) Where was Lencho's house situated? Why did he sit seeing the sky?
- 3) Why did Lencho say the raindrops were like 'new coins'?
- 4) Describe the description caused by the hailstones in Lencho's fields.
- 5) How did the rain change? What happened to Lencho's fields?
- 6) What were Lencho's feelings when the hail stopped?
- 7) Who or what did Lencho have faith in? What did he do?
- 8) Who read the letter?
- 9) What made Lencho angry?
- 10) Why did Lencho write a letter to God?
- 11) How did the postman and the postmaster react to Lencho's letter to God?
- 12) Why did Lencho not want the money to be sent through mail?
- 13) What did the postmaster do after reading a letter?
- 14) How did the postmaster help Lencho?
- 15) How did Lencho react when he counted the money? What did he do thereafter?
- 16) What did Lencho write in his second letter to God?
- 17) Were the post office employees really the crooks?
- 18) There are two kinds of conflict in the story: between human and nature, and between humans themselves. How are these illustrated?

II. Long Answer type questions:

- 1) Who does Lencho have complete faith in? Which sentences in the story tell you this?
- 2) Why does the postmaster send money to Lencho? Why does he sign the letter to God?
- 3) What did the postmaster need to answer the letter? How did he collect it?
- 4) Give a character sketch of Lencho.
- 5) How does the character of Lencho inspire us to have faith in God and remain calm in difficult situation?
- 6) Describe Lencho's qualities in light of his faith in God. Do you have faith in God like Lencho? Was Lencho's reaction towards post office employees right?
- 7) What values are reflected in the characters of the post office employees?
- 8) What was Lencho's only hope when he saw his ruined crops after the hailstorm? What did he do then?

- 9) Do you believe in the existence of God? Give your reasons on the basis of the lesson 'A Letter to God'.
- 10) Write in brief on the value involved in it, in about 100 words. Give the paragraph a suitable title.

DUST OF SNOW (Poem)

I. Answer the following questions in one or two sentences:

- 1) What is a 'dust of snow'? What does the poet say has changed his mood? How has the poet's mood changed?
- 2) How does Frost present nature in this poem? The following questions may help you to think of an answer.
 - i) What are birds that usually named in poems? Do you think crow is often mentioned in poems? What image comes to your mind when you think of a crow?
 - ii) What is a 'hemlock tree'? Why doesn't the poet write about more 'beautiful' tree such as a maple, or an oak, or a pine?
 - iii) What do the 'crow' and 'hemlock' represent- joy or sorrow? What does the Dust of Snow that the crow shakes off a hemlock tree stand for?
- 3) What does the poet Robert Frost want to convey through the poem 'Dust of Snow'?
- 4) Where do you think the poet was? What happened to him?
- 5) What happened when the dust of snow fell on the poet? What mood was the poet in before it?
- 6) What did the poet think of the day before the fall of dust of snow on him?
- 7) How has the poet observed 'nature' in the poem 'dust of Snow'?
- 8) "And saved some part of a day, I had rued". Explain.
- 9) Why was the poet standing under the hemlock tree?
- 10) What is the poet trying to convey through the poem 'Dust of Snow'?
- 11) What difference do you find between Robert Frost and other nature poets?

II. Long Answer Type Questions:

- 1) What are possible themes of this poem? What do you learn from them? Cite evidence from the text to support your answer.
- 2) Nature has the power to lift our mood even when we are highly despondent. Comment on the basis of your understanding of the poem 'Dust of Snow'.
- 3) What happened when the dust of snow fell on the poet? How did it change his mood?

- 4) Small things in life will make significant changes in our life. Elaborate with reference to the poem 'Dust of Snow'.
- 5) Why did the poet say that the dust of snow made him rue the day?
- 6) Do you think that judging other people with a prejudice eye makes us impervious to any goodness in them? Discuss in context of 'crow and hemlock tree' in this poem.

Supplementary Reader

Lesson 1

A Triumph of Surgery

I. Answer the following questions in one or two sentences:

- 1) Why was Mrs. Pumphrey worried about Tricki?
- 2) What does she do to help him? Is she wise in this?
- 3) Who does 'I' refer to in this story?
- 4) How did Mrs. Pumphrey react to Tricki's condition? What did she do?
- 5) How did the author 'treat' Tricki at the surgery?
- 6) Why was the entire staff of Mrs. Pumphrey at work while Tricki was going to hospital?
- 7) What was wrong with Tricki as found by the author?
- 8) How does he treat the dog?
- 9) What was Tricki's ailment? How did it worry Mrs. Pumphrey?
- 10) How did Mrs. Pumphrey react when she heard that Tricki could be collected as it had got well?
- 11) What was Mr. Herriot's strict advice? Did Mrs. Pumphrey heed his advice? What excuses did she make?
- 12) What was wrong with Tricki as found by the author after the examination?
- 13) Why is he tempted to keep Tricki on as a permanent guest?
- 14) Why does Mrs. Pumphrey think the dog's recovery is 'a triumph of surgery'?
- 15) What made James Herriot expect a call from Mrs. Pumphrey?
- 16) What 'Extra' did Mrs. Pumphrey start to give Tricki and why?
- 17) What made Mrs. Pumphrey call the vet?
- 18) How can you say that it was hard for Mrs. Pumphrey to part with her doting pet?
- 19) What kind of treatment was given to Tricki?
- 20) Briefly describe Herriot's days of content.

II. Long Answer Type Questions:

- 1) What kind of a person do you think the narrator, a veterinary surgeon, is? Would you say he is tactful as well as full of common sense?
- 2) How can you say that Mrs. Pumphrey was a rich lady?
- 3) Excess of everything is bad. Comment in the wake of Mrs. Pumphrey's love for Tricki.
- 4) Pen down incidences in support of values one should inculcate from Mr. James Herriot.
- 5) Do you think parents like Mrs. Pumphrey exist? If yes, it it a good thing to pamper children? Why or why not?
- 6) How did the narrator cure Tricki's ailment?

Saakhi (साखी)

Question Answers - प्रश्न अभ्यास

(क) निम्नलिखित प्रश्नों के उत्तर दीजिये:-

प्रश्न 1 -: मीठी वाणी बोलने से औरों को सुख और अपने तन को शीतलता कैसे प्राप्त होती है ?

उत्तर -: कबीरदास जी के अनुसार जब आप दूसरों के साथ मीठी भाषा का उपयोग करोगे तो उन्हें आपसे कोई शिकायत नहीं रहेगी। वे सुख का अनुभव करेंगे और जब आपका मन शुद्ध और साफ़ होगा परिणामस्वरूप आपका तन भी शीतल रहेगा।

प्रश्न 2 -: दीपक दिखाई देने पर अँधियारा कैसे मिट जाता है ? साखी के सन्दर्भ में स्पष्ट किजिए।

उत्तर -: तीसरी साखी में कबीर का दीपक से तात्पर्य ईश्वर दर्शन से है तथा अँधियारा से तात्पर्य अज्ञान से है। ईश्वर को सर्वोच्च ज्ञान कहा गया है अर्थात् जब किसी को सर्वोच्च ज्ञान के दर्शन हो जाये तो उसका सारा अज्ञान दूर होना सम्भव है।

प्रश्न 3 -: ईश्वर कण - कण में व्याप्त है , पर हम उसे क्यों नहीं देख पाते ?

उत्तर -: कबीरदास जी दूसरी साखी में स्पष्ट करते हैं कि ईश्वर कण कण में व्याप्त है ,पर हम अपने अज्ञान के कारण उसे नहीं देख पाते क्योंकि हम ईश्वर को अपने मन में खोजने के बजाये मंदिरों और तीर्थों में खोजते हैं।

प्रश्न 4 -: संसार में सुखी व्यक्ति कौन है और दुखी कौन ? यहाँ 'सोना' और 'जागना' किसके प्रतिक हैं ? इसका प्रयोग यहाँ क्यों किया गया है ? स्पष्ट कीजिए।

उत्तर -: कबीरदास के अनुसार संसार के वे सभी व्यक्ति जो बिना किसी चिंता के जी रहे हैं वे सुखी हैं तथा जो ईश्वर वियोग में जी रहे हैं वे दुखी हैं। यहाँ 'सोना ' 'अज्ञान ' का और 'जागना ' ईश्वर - प्रेम ' का प्रतिक है। इसका प्रयोग यहाँ इसलिए हुआ है क्योंकि कुछ लोग अपने अज्ञान के कारण बिना चिंता के सो रहे हैं और कुछ लोग ईश्वर को पाने की आशा में सोते हुए भी जग रहे हैं।

प्रश्न 5 -: अपने स्वभाव को निर्मल रखने के लिए कबीर ने क्या उपाय सुझाया है ?

उत्तर -: अपने स्वभाव को निर्मल रखने के लिए कबीर ने निंदा करने वाले व्यक्तियों को अपने आस पास रखने का उपाय सुझाया है। उनके अनुसार निंदा करने वाला व्यक्ति जब आपकी गलतियां निकालेगा तो आप उस गलती को सुधार कर अपना स्वभाव निर्मल बना सकते हैं।

प्रश्न 6 -: ' ऐकै अषिर पीव का , पढ़ै सु पंडित होइ ' - इस पंक्ति द्वारा कवि क्या कहना चाहता है ?

उत्तर -: 'ऐकै अषिर पीव का , पढ़ै सु पंडित होइ ' - इस पंक्ति में कवि ईश्वर प्रेम को महत्त्व देते हुए कहना चाहता है कि ईश्वर प्रेम का एक अक्षर ही किसी व्यक्ति को पंडित बनाने के लिए काफी है।

प्रश्न 7 -: कबीर की उद्धृत साखियों की भाषा की विशेषता प्रकट कीजिए।

उत्तर -: कबीर की साखियों में अनेक भाषाओं का प्रभाव स्पष्ट दिखाई देता है। उद्धृत साखियों की भाषा की विशेषता यह है कि इसमें भावना की अनुभूति ,रहस्यवादिता तथा जीवन का संवेदनशील संस्पर्श तथा सहजता को प्रमुख स्थान दिया गया है।

(ख) निम्नलिखित पंक्तियों के भाव स्पष्ट कीजिये:-

(1) ' बिरह भुवंगम तन बसै, मंत्र न लागै कोइ।'

भाव -: इस पंक्ति का भाव यह है कि जब किसी मनुष्य के मन में अपनों से बिछड़ने का गम रूपी साँप जगह बना लेता है तो कोई दवा ,कोई मंत्र काम नहीं आते।

(2) ' कस्तूरी कुंडलि बसै,मृग ढूँढ़ै बन माँहि। '

भाव -: इस पंक्ति का भाव यह है कि अज्ञान के कारण कस्तूरी हिरण पूरे वन में कस्तूरी की खुसबू के स्रोत को ढूँढता रहता है जबकि वह तो उसी के पास नाभि में विद्यमान होती है।

(3) ' जब मैं था तब हरि नहीं, अब हरि हैं मैं नहीं।'

भाव -: इस पंक्ति का भाव यह है कि अहंकार और ईश्वर एक दूसरे के विपरीत हैं जहाँ अहंकार है वहाँ ईश्वर नहीं ,जहाँ ईश्वर है वहाँ अहंकार का वास नहीं होता

(4) ' पोथी पढ़ि - पढ़ि जग मुवा, पंडित भया न कोइ। '

भाव -: इस पंक्ति का भाव यह है कि किताबी ज्ञान किसी को पंडित नहीं बना सकता , पंडित बनने के लिए ईश्वर - प्रेम का एक अक्षर ही काफी है।

भाषा अध्ययन :-

पाठ में आए निम्नलिखित शब्दों के प्रचलित रूप उदाहरण के अनुसार लिखिए।

उदाहरण - *जिवै - जीना*

औरन, माँहि, देख्या, भुवंगम, नेड़ा, आँगणि, साबण, मुवा, पीव, जालौं, तास।

Answer:

जिवै - जीना

औरन - औरों को

माँहि - के अंदर (में)

देख्या - देखा

भुवंगम - साँप

नेड़ा - निकट

आँगणि - आँगन

साबण - साबुन

मुवा - मुआ

पीव - प्रेम

जालौं - जलना

तास - उसका

CHAPTER – 12

ELECTRICITY

Think life without “electricity” in this modern society. Is it possible to survive without electrical energy in world of technology. Since we are science student, so it is necessary to understand the basic concept behind the word “electricity”

Charge → (q)

It is a very small particles present in an atom it can be either negative (electron) or positive (proton)

“Coulomb” is the SI unit of charge, represented by C.

Net charge (Q)– Total charge

IC Net charge is equivalent to the charge contained in nearly electrons 6×10^{18}

$$\boxed{Q = ne} \quad (\text{n is no: of electron})$$

If $Q = 1\text{C}$, $e = 1.6 \times 10^{-19}\text{C}$ (negative charge on electron)

$$\begin{aligned} n &= \frac{Q}{e} = \frac{1}{1.6 \times 10^{-19}} \\ &= \frac{100}{16} \times 10^{18} = 6.2 \times 10^{18} \end{aligned}$$

$$\boxed{n = 6 \times 10^{18} \text{ electron}}$$

Current (I)

Rate of flow of net charge is called current. Denoted by (I)

$$\boxed{I = \frac{Q}{t}} \quad t \text{ is time}$$

SI unit of current is “Ampere” rep. by A.

Ampere → Defined as one coulomb of charge following per second.

$$\boxed{1\text{A} = \frac{1\text{C}}{1\text{s}}}$$

In an electric circuit the electric current flow in the opposite direction of the flow of electron (–ve charge) conventionally. It flows from the +ve terminal of battery or cell to –ve terminal.

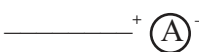
Small quantity of current are expressed in

$$\text{mA (milli Ampere)} = 10^{-3} \text{ A}$$

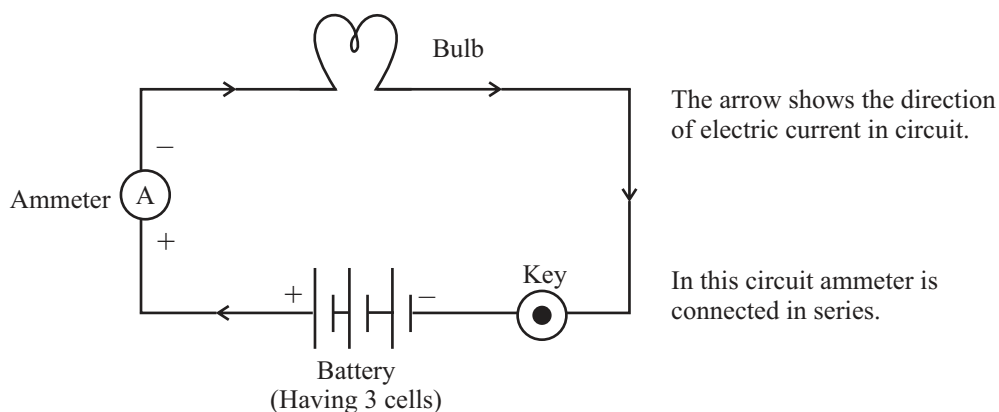
$$\text{uA (micro Ampere)} = 10^{-6} \text{ A}$$

Ammeter– It is an instrument used to measure the electric current in a circuit.

It is always connected in series in a circuit

It is represented by the symbol  in an electric circuit. It has low resistance.

Electric Circuit– It is a closed path along which an electric current flow.



The electron can only flow when there is difference of electric pressure. For example “water flowing through a tube” It is only possible when there high pressure at one side and low at another side, then it will move from high pressure to low pressure.

In case of electric current, the flow of charge is made possible due to chemical action with in a cell that generates the potential difference across the terminals of the cell.

8. Electric potential Difference– It is defined as the work done in carrying a unit charge from one point to another between the two points of an electric circuits.

$$V = \frac{W}{Q}$$

V – Potential Difference

W – Work

Q – Net Charge

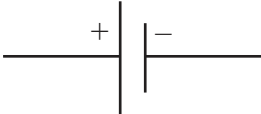




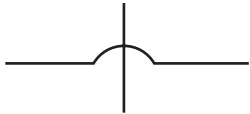



SI unit of potential difference – Volts rep. by “V”

One Volt → When 1 Joule of work is done to carry one coulomb (1C) of charge from one point to another of a current carrying conductor then the potential difference is said to be 1V.

$$1V = \frac{1J}{1C}$$

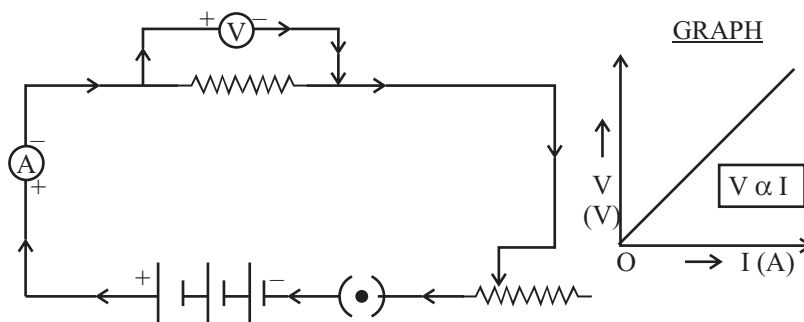
Voltmeter → It is an instrument, used to measure the potential difference and represented by the symbol $\text{---}^+\text{V}\text{---}$ in an electric circuit. It is always connected in parallel across the points between which the potential difference is to be measured. It has high resistance.

Symbols for some commonly used instrument in circuit diagrams

- (1) Cell 
- (2) Battery 
- (3) Key (switch) open 
- (4) Key (Close) 
- (5) Joint wire 
- (6) Wires with no join 
- (7) Bulb 
- (8) Ammeter 
- (9) Voltmeter 

Georg Simon Ohm (physicist) 1787 – 1854

Found the relationship between the current (I) flowing through a conductor and potential difference (V) across the terminals of a conductor using the circuit diagram.



In this circuit diagram we come across two new symbols

RESISTANCE (R)
 OR RHEOSTAT (Variable Resistance)

Ohm’s Law → He stated that the electric current flowing through a conductor is directly proportion at to the potential difference across its ends, provided the temperature remain constant

$$V \propto I$$

$$V = IR$$

Where “R” is the proportionality constant for the given metal at given temperature and is said to be resistance, the graph between V and I is always straight line.

Resistance– It is the property of a conductor that opposes the flow of current. It is represented by ‘R’ and symbol is

SI unit of resistance “Ohm” OR Ω

1 Ohm – The resistance of a conductor is said to be one Ohm, when the potential difference across the conductor is 1V and the current flowing through it is 1A.

$$V = IR$$

$$\therefore R = \frac{V}{I}$$

$$1 \text{ Ohm or } 1 \Omega = \frac{1V}{1A}$$

Rheostat–

As we know that

$$V = IR$$

$$\therefore I = \frac{V}{R} \quad \left\{ \begin{array}{l} \text{Shows that current through} \\ \text{conductor resistor is inversely} \\ \text{proportional to its resistance} \end{array} \right\}$$

So to increase or decrease the current accordingly in the circuit a component is used is called “Rheostat”, that regulates the current without changing potential difference. Represented by “Rh”

Its symbol is  OR 

if a conductor has less Resistance, then more current will flow through it.

FACTORS ON WHICH RESISTANCE OF A CONDUCTOR DEPENDS–

- (1) On its length (l)
- (2) On its cross sectional area (A)
- (3) On the nature of material

$$\begin{array}{ll} \text{(Resistance)} & R \propto l \quad \text{(Directly prop. to length)} \\ & R \propto \frac{1}{A} \quad \text{(inversely prop to cross-sectional area)} \\ & R \propto \frac{l}{A} \end{array}$$

$$\boxed{R = \rho \frac{l}{A}}$$

Where “ ρ ” (rho) is a proportionality constant known as resistivity of the material of conductor.

11. **Resistivity** (ρ) – the resistance offered by a wire of unit length and unit cross-sectional area is called resistivity.

Its SI unit is $\boxed{\Omega \text{ m}}$

$$\left[\begin{array}{l} \text{Since } R = \rho \frac{l}{A} \\ \therefore \rho = \frac{R \cdot A}{l} = \frac{\Omega \cdot \text{m}^2}{\text{m}} \\ \therefore \text{SI unit of } \rho = \Omega \text{m.} \end{array} \right]$$

For a material irrespective of length and area, the resistivity is a constant.

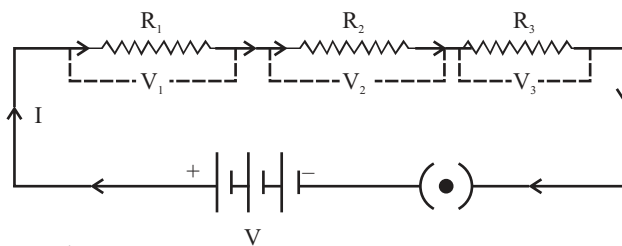
Resistivity of a material vary with temperature

Resistivity of an alloy (homogeneous mixture of metals) is generally higher than of its constituent metals. Example Constantan (alloy of Cu & Ni)

Alloys have high resistivity and do not oxidise (burn) readily at high temperature, for this reason they are commonly used in electrical heating devices, like electric iron, heater, toasters etc. For example “Tungsten” as filament of electric bulb.

Resistance in Series– (Maximum Effective Resistance)

Let us take three resistance R_1 , R_2 and R_3 that are connected in series in a circuit.



Ohm’s law stated
 $V = IR$

The current (I) flowing through the resistance in series will remain same, where as the potential difference (V) across each resistor will be different.

$$V = IR$$

$$V_1 = IR_1, \quad V_2 = IR_2, \quad V_3 = IR_3$$

Total potential difference (V) = $V_1 + V_2 + V_3$

$$V = IR_1 + IR_2 + IR_3 \quad \left. \vphantom{V = IR_1 + IR_2 + IR_3} \right\} \text{ Putting the value of } V, V_1, V_2 \text{ \& } V_3$$

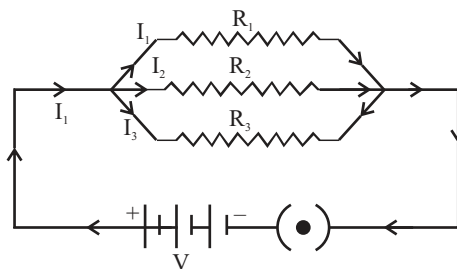
$$IR = I(R_1 + R_2 + R_3)$$

$R_{\text{eff}} = R_1 + R_2 + R_3$

Thus, we conclude that effective Resistance of the several resistors joined in series is equal to the sum of their individual resistance.

Resistance in Parallel (Minimum Effective Resistance)

Let us take three R_1 , R_2 and R_3 , that are connected in parallel in the electric circuit.



Now,

$$I_1 = \frac{V}{R_1}, I_2 = \frac{V}{R_2}, I_3 = \frac{V}{R_3}$$

Total current (I) = $I_1 + I_2 + I_3$
 substitute the value of I_1, I_2, I_3 and I

$$\frac{V}{R} = \frac{V}{R_1} + \frac{V}{R_2} + \frac{V}{R_3}$$

$$\cancel{V} \frac{1}{R} = \cancel{V} \left[\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} \right]$$

$$\frac{1}{R_{\text{eff}}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

Thus, we conclude that the reciprocal of total effective resistance of the several resistors connected in parallel is equal to the sum of the reciprocals of the individual resistance.

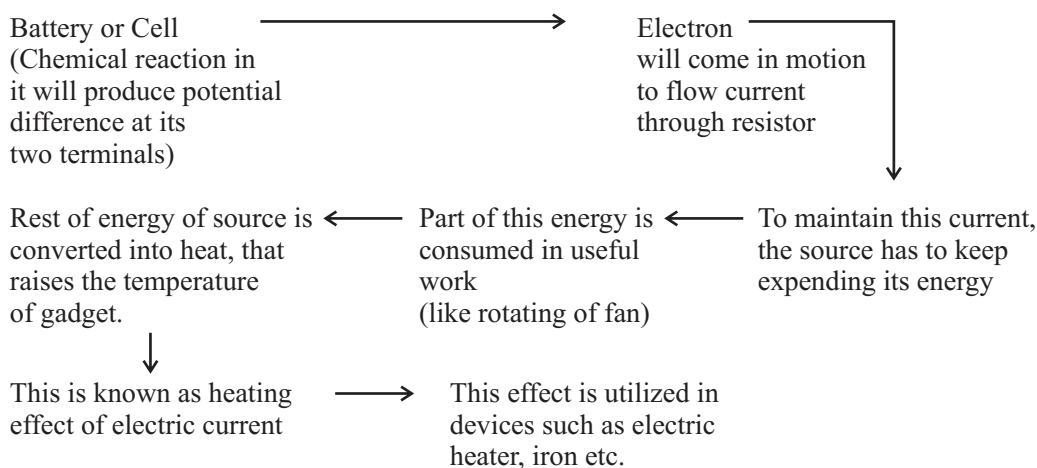
Disadvantage of series connection in on electric circuit :-

1. In series connection if any of the component fail to work, the circuit will break and then none of the component (ex. TV, bulb, fan..) will work.
2. It is not possible to connect a bulb and a heater in series, because they need different value of current to operate properly.

Hence, to overcome this problem we generally use parallel circuit.

Heating effect of Electric Current :

Explanation® Battery or a cell is a source of electrical energy.



Mathematical Expression :-

Let us suppose that current (I) is flowing through a resistor of resistance (R) for the time (t). The potential difference across the resistance is (V).

$$V = \frac{W}{Q}$$

∴ Work done in moving the charge Q will be

$$W = VQ$$

$$\text{Then power, } P = \frac{W}{t} \quad [\text{Rate of change of work done}]$$

$$= \frac{VQ}{t}$$

$$P = VI \quad \left[\because I = \frac{Q}{t} \right] \quad - (1)$$

Heat energy supplied by the source for time t will be

$$H = P \times t \quad \left[\because P = \frac{\text{Energy or Work}}{\text{time}} \right] \quad - (2)$$

Put equation (i) in equation (2)

$$\begin{aligned} H &= VIt \\ &= (IR) It \quad [\because V = IR \text{ Ohm's Law}] \end{aligned}$$

$$\boxed{H = I^2 R t}$$

This is known as Joule's Law

The law stated that the heat produced in a resistor is

- (i) directly proportional to square of the current(I)
- (ii) directly proportional to resistance (R) for given current
- (iii) directly proportional to time (t) for which current flow through resistor.

Application of Heating Effect of Electric Current :-

- (1) Used in electric iron, toaster, oven, heater etc.
- (2) It is also used in bulb to produce light.

(Filament of bulb is made of strong metal with high melting point such as tungsten (m.pt = 3380°C). This filament can retain as much of the heat generated as possible, to become very hot and emit light)

- (3) It is also used in the “fuse connected in an electric circuit {Fuse a safety device, protect the circuits and appliance by stopping the flow of high current. The wire of fuse is made of an alloy of metals for ex Aluminium Copper, Iron

lead etc. The alloy should be of low m.pt and high resistivity, fuse is always connected in series circuit. When large current flow through the circuit, the temperature of fuse wire will increase. This melts the fuse wire and break the circuit.

“Fuses” used for domestic purposes are rated as 1A, 2A, 3A, 5A, 10A etc. for various operation depending upon the power of appliance using.

Example- let us consider an appliance “electric Iron” which consume 1KW electric power, at 220V

$$P = VI$$

$$I = \frac{P}{V} = \frac{1KW}{220V} = \frac{1000W}{220V}$$

$$I = 4.54A$$

In this case a 5A fuse is required.

Electric Power :- In case of electricity, it is defined as the rate of change electrical energy dissipated or consumed in an electric electrical energy dissipated or consumed in an electric circuit.

$$P = VI$$

$$\text{or } P = I^2R \quad (\because V = IR \text{ Ohm's Law})$$

$$\text{or } P = \frac{V^2}{R} \quad (\because I = \frac{V}{R})$$

$$\text{or } P = \frac{\text{Electrical Energy (E)}}{\text{time (t)}}$$

SI unit of electric power is “Watt” (W).

1 Watt→ Defined as the power consumed by a device, when 1A of current passes through it at the potential difference of 1V.

$$P = VI$$

$$1 \text{ Watt} = 1 \text{ Volt} \times 1 \text{ Ampere}$$

29 Electrical Energy-

$$P = \frac{E}{t}$$

$$\left[\begin{array}{l} E - \text{Electrical Energy} \\ t - \text{time} \end{array} \right]$$

$$\therefore E = P \times t$$

SI unit of electrical energy = Ws or J

Commercial unit of electrical energy = KWh or One unit

$$E = P \times t$$

$$\therefore \text{KWh} = 1\text{KW} \times \text{h}$$

$$= 1000\text{W} \times 3600 \text{ s}$$

$$= 36 \times 10^5 \text{Ws}$$

$$= 3.6 \times 10^6 \text{J} \quad (\text{SI unit Ws} = \text{J})$$

$$\therefore 1 \text{ KWh} = 3.6 \times 10^6 \text{J}$$

$$\text{One horse power} = 746\text{W}$$

EXERCISE

(Question Bank)

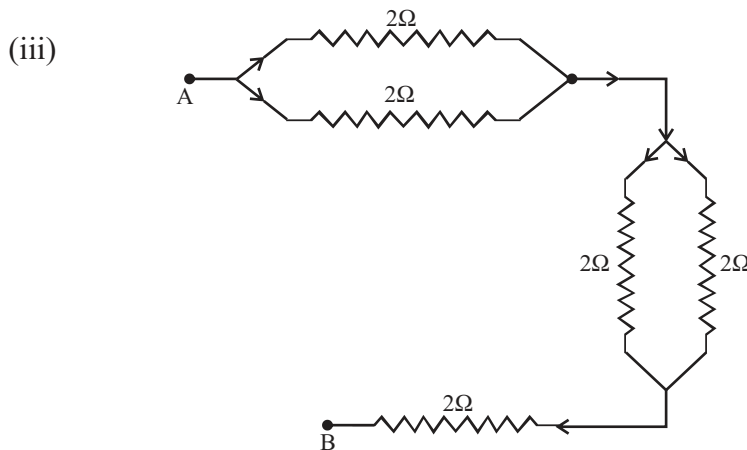
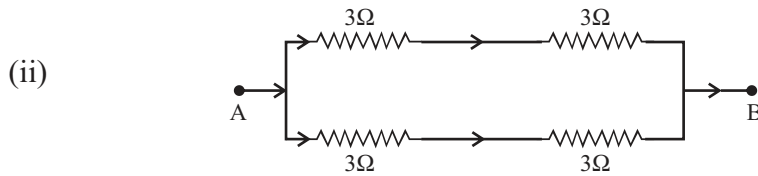
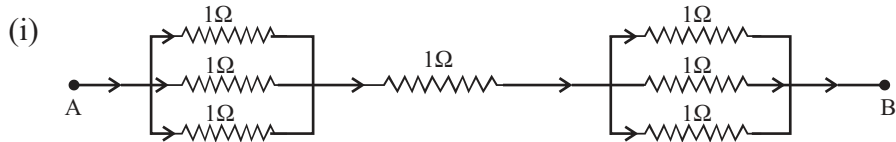
Very Short Answers (1 Mark)

1. Define the SI unit of (one mark each)
 - (a) Current
 - (b) Potential Difference
 - (c) Resistance
 - (d) Electric Power
 - (e) Electric Energy (Commercial)
2. What is the conventional direction of flow of current?
3. Define the term resistivity?
4. On what factors does the resistance of a conductor depend?
5. How is the voltmeter and ammeter connected in the electric circuit.
6. Heating effect of current carrying conductor is due to –
(Ans : loss of kinetic energy of electron)
7. Why the filament of bulb has high melting point?
8. How does use of a fuse wire protect electrical appliance?
9. What is the relationship between power, current and potential difference
(Ans : $P = VI$)
10. How many joules are there in 1KWh?

Short Answer (2-3 marks) type Questions

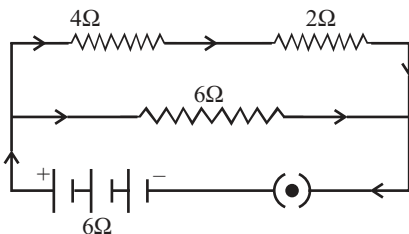
1. Draw a schematic diagram of a circuit consisting of a battery of six cell of 1.5V each, three resistor each of 3Ω in series and a plug key.
2. State Ohm's law. Draw the graph between V&I?
3. What is joule's Heating effect of current, derive its expression?
4. A wire of length L and R is stretched so that its length's doubled and the area of cross section is halved. How will its
 - (i) Resistance change
 - (ii) Resistivity change.

5. An electrical appliance of power 2KW works at potential difference of 220V. Does it require fuse of 5A, give reason?
6. Calculate the total effective resistance between points A and B



Long Answer (5 Marks) type Questions

1. On what factor the resistance of conductor depends give its mathematical expression. Give the SI unit of resistivity?
Calculate the resistivity of a metal of length 2m at 20°C having the resistance of 20Ω and diameter 0.3mm?
2. In a circuit below, calculate



- (1) Calculate total effective resistance
 - (2) The total current through the circuit.
 - (3) Potential difference across 4Ω and 2Ω .
3. Three resistance of 2Ω , 3Ω and 5Ω are connected in the electric circuit. Calculate the
- (1) Maximum effective resistance
 - (2) Minimum effective resistance

NOTRE DAME H.C.SCHOOL

Sub- GEOGRAPHY : CLASS-X

chapter-1 RESOURCES AND DEVELOPMENT

Some important Questions to be solve by students

1. "Indiscriminate use of Resource has led to numerous problems". Justify this statement.
2. Explain the three steps involved in the resource planning in India.
3. Land is a natural resource of utmost importance. Describe this statement.
4. Write a brief note on Rio de Janerio Earth summit,1992. (HOTS)
5. Define national resource.
6. Why is conservation of resources important to all levels?
7. Mention three characteristics of Black soil.
8. What is soil erosion? Explain measures to check soil erosion.
9. Why has land under agriculture increased in 1998-1999 in comparison to 1950-1951? Give two reason.

Subject Teacher- Norbert Jamatia

POWER SHARING

With this chapter, we resume the tour of democracy that we started last year.

An intelligent sharing of power among a legislature, executive and judiciary is very important to the design of a democracy.

We start with two stories from Belgium and Sri Lanka.

Both these stories are about how democracies handle demands for power sharing.

Belgium and Sri Lanka

1. Belgium is a small country in Europe.
2. It has borders with Netherlands, France and Germany.
3. 59% in the Flemish region speaks Dutch.
4. Another 40% people live in Wallonia region and speaks French.
5. Remaining 1% of the Belgians speak German.
6. In the capital city Brussels, 80% people speak French while 20% are Dutch — speaking.
7. The minority French — speaking community was relatively rich and powerful.

This was resented by the Dutch-speaking community who got the benefit of the economic development and education much later.

The tension between two communities was acuter in Brussels.

Like other nations in the south Asia region, Sri Lanka has a diverse population.

The Sinhala speakers are 74% and Tamil speakers are 18%

Among Tamils, there are two sub groups, Tamil natives of the country are called “Sri Lankan Tamils”: the rest whose forefathers came from India as a population workers during the colonial period, is called ‘Indian Tamils’.

Majoritarianism in Sri Lanka:

1. Sri Lanka emerged as an independent country in 1948.
2. The leaders of the Sinhala community sought to secure dominance over the government by virtue of their majority.
3. an Act was passed to recognize Sinhala as the only official language, thus disregarding Tamils
4. A new constitution stipulated that the state shall protect and foster Buddhism.
5. All these coming measures, coming one after the other, gradually increased the feeling of alienation among the Sri Lankan Tamils.
6. As a result, the relations between the Sinhala and Tamil communities strained over time.
7. The Sri Lankan Tamils launched parties and struggles.
8. But their demand for more autonomy to provinces populated by the Tamils was repeatedly denied.
9. The distrust between the two communities turned into widespread conflict. It soon turned into CIVIL WAR.
10. The civil war caused a terrible setback to the social, cultural and economic life of the country.

Accommodation in Belgium:

Belgium recognized the existence of regional differences and cultural diversities.

Between 1970 and 1993, they amended their constitution four times so as to work out an arrangement that would enable everyone to live together within the same country.

Here are some of the elements of the Belgian model:

1. Constitution prescribes that the number of Dutch and French speaking ministers shall equal the central

government.

2. Many powers of the central government have been given to states government of the two of the regions of the country.
3. Brussels has separated government in which both the communities have equal representation.
4. Apart from the central and state government, there is a third kind of government. This is Community government.
5. In Belgium, the leaders have realized that the unity of the country is possible only by respecting the feelings and interest's of different communities and regions.
6. SriLanka shows us a contrasting example. It shows us that if a majority community wants to force its dominance over others and refuses to share power, it can undermine the unity of the country.

Why is power sharing desirable?

Thus, two different sets of reasons can be given in favour of power sharing.

Firstly, power sharing is good because it helps to reduce the possibility of conflict between social groups.

There is a second, deeper reason why power sharing is good for democracy. Power sharing is very spirit of democracy. A democratic rule involves sharing power with those affected by its exercise,

And who have to live with its effects.

Let us call the first set of reasons PRUDENTIAL and the second moral.

While prudential reasons stress that power sharing will bring out better outcomes, moral reasons emphasize the very act of the power sharing as valuable.

One basic principle of power sharing is that people are the source of all political power.

In a good democratic government, due respect is given to diverse groups and views that exist in a society.

Everyone has a voice in the shaping of public politics.

Therefore, it follows that in a democracy political power should be distributed among as many citizens as possible.

Let us look at some of the most common arrangements that we have or will come across.

Power is shared among different organs of the government, such as the legislature, executive, and judiciary. Let us call this horizontal distribution of power because it allows different organs of the government placed at the same level to exercise different powers.

Power can be shared among governments at different levels—a general government for the entire country and governments at the provincial or regional level. The division of higher and lower levels of government is called the vertical division of power.

Power may also be shared among different social groups, such as the religious and linguistic groups. 'Community government' is a good example of this arrangement.

Check Class IX

Sub: Economics

1. THE STORY OF VILLAGE PALAMPUR

Page : 14 Exercises

ONLY THE ANSWERS

Answer 1. (a) Location: A small village connected with Rai Ganj, a big village and Shahpur, a small town.

(b) Total Area of the Village : 226 hectares

(c) Land Use (in hectares) : 140 hectares

CULTIVATED LAND

Irrigated : 200 hectares

Uncultivated: Nil

Land not available for cultivation (Area covering dwellings, roads, ponds, grazing ground)
26 hectares.

(d) Facilities :

Education: Two primary and one high school

Medical : One primary health centre and one private dispensary

Market : Rai Ganj (Big Village) and Shahpur (Small Town)

Electricity Supply : Most of the houses have electric connections

Communication : Post and Telegraph, Telephone

Nearest Town : Shahpur.

Ans:2. Yes, we agree that modern farming methods require more inputs which are manufactured in industry. The input requirements include chemical fertilizers, pesticides, High yielding varieties (HYVs) of seeds. These can be procured Only when they are produced by industry. There is a company named IFFCO which is engaged in the production of chemical fertilizers, pesticides etc.

Ans: 3.The spread of electricity helped farmers in Palampur to run tubewells, pump sets for irrigation of fields. This way farmers can grow crops during non rainy season. Electricity also helped in running machines like sugarcane crushing machine to help jaggery plant.

Ans: 4. Yes, it is important to increase area under irrigation. This is due to following reasons:

(a) Agriculture land can be used during off rainy season.

(b) Crop losses can be avoided due to less rain or no rain during monsoon season.

(c) Farmers can be provided with security against lack of rains.

(d) Irrigation facility retains land facility for longer use.

Ans: 5. Number of families

Landless families: 150

Less than 2 hectares of land : 240

More than 2 hectares of land :60

A few of the large farmers have land extending over 10 hectares or more.

Ans: 6. The wages for farm labourers in Palampur is less than minimum wages because there is heavy competition for work among the farm labourers in Palampur, so people agree to work for lower wages or whatever they are given as wages.

Ans: 8. The following are the different ways of increasing production on the same piece of land:

- (a) Modern farming method. It helps in increasing the yield of the land. For example, use of High yield variety (HYV) of seed, pesticides, chemical fertilizers help in increasing the land productivity.
- (b) Multiple Cropping. Under multiple cropping system, more than one crop is grown on a piece of land. It increases the production on same piece of land. For example, wheat, and potato can be grown on the same piece of land.

Ans: 9. The work of a farmer with 1 hectare of land can be described as follows:

- (a) Ploughing the field by bullock. It will help to make space for sowing the seeds.
- (b) Sowing the seeds in the ploughed land. In traditional method, it will be done manually without use of any tools or machines.
- (c) Spraying the insecticides on regular basis to save the crop from insects. Insects can damage the crop if not handled earlier.
- (d) Cultivation of crops by traditional method.
- (e) Cutting the crop when it is ready for use.

Ans: 10. The capital requirements of medium and large farmers is met out of surplus earning generated by them in the farm activity. They are influential

and financially sound. So, it is easy for them to obtain loan from cooperative and rural development Banks. Members of their families working in cities also extend financial support.

The poor small farmers depend upon loans from big farmers and money lender at higher rate of interest and get trapped in the vicious clutches of debt and poverty. Hence, large farmers are more comfortable to obtain capital than small farmers.

Ans: 11. Tejpal Singh agrees to give Savita the loan at an interest rate of 24 per cent for four months. Besides this, she also has to work on Tejpal Singh's field as a farm labourer during the harvest season at ₹ 35 per day.

Yes, Savita's condition would be different if she could get a loan from the bank at a low rate of interest. But it is not easy for people like Savita to obtain a loan from the bank as the bank asks for collateral security while giving a loan. Savita does not have any collateral security.

Ans: 12. I talked to some old farmers in my region and got to know the following about the changes in irrigation and changes in production methods in the last 30 years.

1. Changes in irrigation method. Earlier irrigation was dependent on rains, canals etc. There was no water supply to use for farm land. Now a days, irrigation is done using tubewell, pump sets. Water is supplied to the farm land using pump sets to ensure that regular irrigation of farm land takes place.
2. Changes in producing method. Production method has changed a lot under modern farming methods over the last 30 years.
 - (i) Use of high yielding variety (HYV) of seeds
 - (ii) Use of pesticides
 - (iii) Use of chemical fertilizers
 - (iv) Use of modern irrigation facilities through Tubewells and canals.
 - (v) Use of tractors in the farm land for ploughing, seeding etc.
 - (vi) Use of harvest combine.

Ans:14. In India, farming is the main production activity in villages. However, steps have been taken to encourage non-farming activities in the villages. These include:

- (i) Electricity supply needs to be made on regular basis. This will help in setting up small scale units which use machi and tools for production.
- (ii) Setting up schools and colleges in the villages. This will help imparting education to the rural population to make them employable resources.
- (iii) Setting up vocational courses in the field of electrician, plumber, carpenter etc. This will help village people to take up activities away from farming.
- (iv) Imparting computer courses to the village people. This will help them in learning modern means of communication.
- (v) Improving road and rail infrastructures across all districts of India. Road and rail infrastructure will help in carrying out production activity by transporting raw material and finished goods.

Number: 7 and 13

Answer the questions by yourself. Please read the lessons

Wish you all the best.

