CHAPTER 4

POLLINATION

I. GIVE REASONS FOR THE FOLLOWING QUESTIONS:

1. Flowers are reproductive parts of the plant.

Flowers contain the reproductive organs (Stamens and Carpel) of a plant which facilitate reproduction, so they are called reproductive parts of a plant.

2. A hibiscus may or may not need a pollinating agent for reproduction.

A hibiscus may or may not need a pollinating agent for reproduction because it is a bisexual flower capable of self-pollination.

II. ANSWER THE FOLLOWING QUESTIONS IN BRIEF:

1. What are the different parts of a flower?

Sepals, Petals, Stamens, Carpel or Pistil

2. Define Pollination.

The phenomenon of transfer of pollen from the anther to the stigma of the same flower or a different flower is termed as pollination.

3. What is the female reproductive organ of a plant called? What are its different parts?

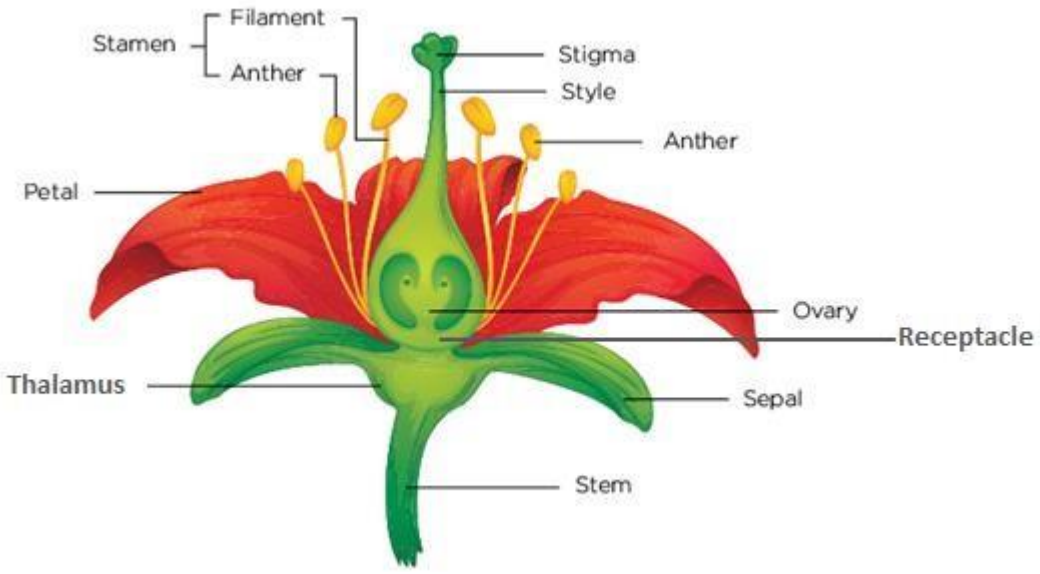
Carpel or pistil is the female reproductive organ of a flower. It consists of three parts: Stigma, Style and Ovary.

4. What is cross pollination?

When the pollen is transferred from the anther of a flower to the stigma of a flower borne by another plant, cross-pollination is said to have happened.

III.ANSWER THE FOLLOWING QUESTIONS IN DETAIL:

1.Explain the different parts of a flower with the help of a diagram.

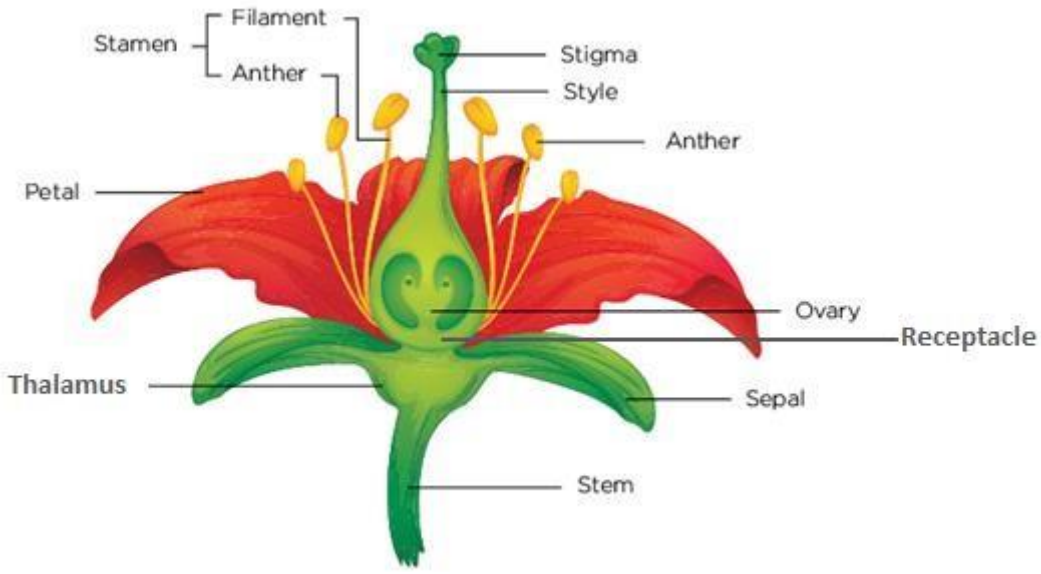


2. What are the different agents responsible for cross-pollination?

- **Insects:** Insects like bees and butterflies sit on a flower to collect its nectar. During this process some pollen grains get stick to the wings and legs of the insects. These grains are then carried by the insect and get deposited on the next flower the insect sits on. Flowers like rose, poppy and hibiscus are pollinated by insects.
- **Wind:** Pollen is also carried by wind. Flowers of grasses like the maize are pollinated by wind.
- **Water:** Transfer of pollen happens through water and is found in water plants like sea grasses.
- **Birds:** Birds visit flowers to collect nectar and transfer pollen grains. Hummingbirds and sun birds are common agents for hibiscus and daffodils.

- **Bats:** Transfer of pollen in some flowers are done by bats, Example- Guava, Banana.

Picture based question

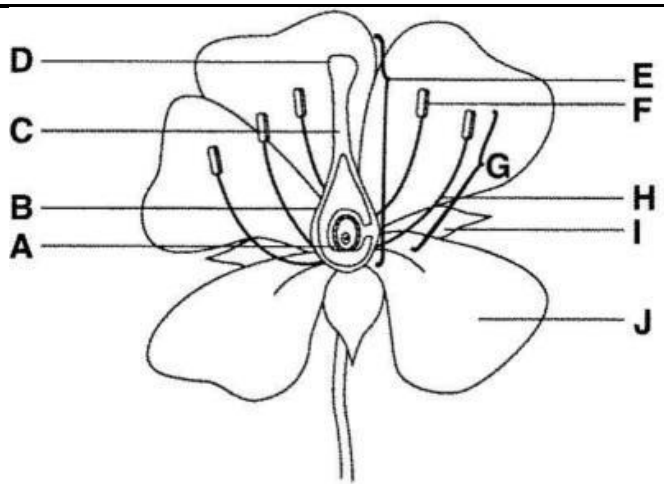


WORKSHEET

I. PICTURE BASED QUESTIONS:

Read the facts about seed dispersal below and fill in the missing words. Use the word bank given in brackets to help you.

[Pods plants dispersed better wind water air shade float droppings explosions fur]



1. A seed can grow into a new **Plants**

2. Plants need **air**, light, water and room to grow.

3. Seeds are **dispersed** in many different ways.

4. Some seeds can catch the **Explosion** and float away from their parent.

5. Seeds can also travel by **Wind**.

6. Seeds can be dispersed by sticking to an animal's **Fur**

7. Some animals eat the fruits that have fallen from the trees and deposit the seeds in their **droppings**

8. Some seeds are dispersed by **Water**

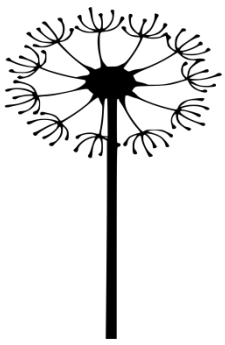
9. Seed **Pods** explode and finding the seeds away.

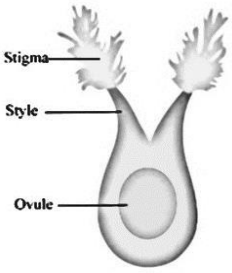
10. Seeds and fruits that are dispersed by water can **float.**

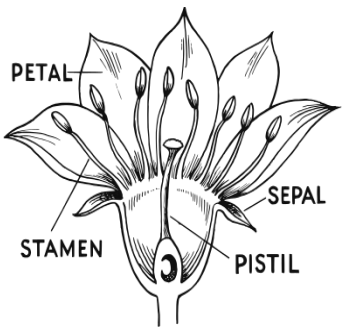
11. A seed will grow **better** if it starts to grow away from the parent plant.

II.USE THE WORDS BELOW TO COMPLETE THE FOLLOWING:

Carpel (Pistel)	Stamen	Pollen







When the **Pollen** is moved from the **Stamen** to the **Pistel.**

WORKSHEET

I. The parts of some flowers are described below. Write insect if you think they belong to insect-pollinated flowers or wind for wind-pollinated flowers.

1. The stigma is sticky. **Wind**

2. The stamens hang loosely out of the flower. **Wind**

3. The petals are brightly colored and have a scent. **Insect**

4. The stamens are inside of the flower. **Wind**

5. The stigma is feathery. **Wind**

6. The petals are small and green. **Wind**

7. The flower is very small. **Wind**

II. Fill in the blanks: -

1. The insects go to insect- pollinated flower because it has **Nectar** (pollen grain/nectar).
2. The insects land on the flower on a structure called the **Stigma** (Stigma / anther).
3. The stamens and the stigmas of the wind- pollinated flower can be found **Outside**. (inside /outside) of the flower.
4. The process of transfer of pollen from the **anther** (anther/stamen) to the stigma of same type is pollination.
5. This is the collective term for the stamens of a flower **Androecium** (Androecium / Gynoecium).

III. USE THE WORDS IN THE BOX TO COMPLETE THE SENTENCES:

Ovules	Male	Female	Pollen

The **Male** part of flower; Stamen, it is where **Pollen** is produced. The **Female**part of the flower: Carpel, it is where **Ovules** are produced.

CHAPTER – 5

REPRODUCTION IN PLANTS

I. GIVE REASONS FOR THE FOLLOWING STATEMENTS:

1. Seeds kept in the kitchen do not germinate.

Seeds kept in the kitchen do not germinate as there is no air, water and warmth available which is required for the germination of the seed.

2. Mushrooms grow from spores.

Mushrooms do not bear flowers. So, they do not produce seeds, hence they produce spores which grow into new plants.

3. Coconuts are light with water resistant covering.

Coconuts are light with water-resistant covering as it enables them to float in water and helps in their dispersal.

II.ANSWER THE FOLLOWING QUESTIONS IN BRIEF:

1. Why must seeds be dispersed?

Plants need space, sunlight, nutrients and water from the soil to grow. If grown too close to each other, the plants will not get sufficient space and nutrients from the soil to support their growth. They will not grow well. Thus, dispersal of seeds is very important.

2. What are the different ways of growing plants give two examples?

The different ways of growing plants are:

i. Growing plants from roots (Ex- Turnip, Beetroot)

ii. Growing plants from the stem (Ex- Rose, Money plant)

iii. Growing plants from leaves (Ex- Bryophyllum, Kalanchoe)

iv. Growing plants from spores (Ex- Mushroom, Ferns)

v. Growing plants from seeds (Ex- Mango, Guava)

3. Describe the features of a seed dispersed by wind?

- The seeds are light.
- The seeds have feathery bristles, wings or hair on them.

4. How does vegetative propagation occur in Bryophyllum?

The leaves of Bryophyllum have buds on the margins which grow into new plants. These can be detached and put in soil and watered regularly. They then grow asindividual plants.

III.ANSWER THE FOLLOWING QUESTIONS IN DETAIL:

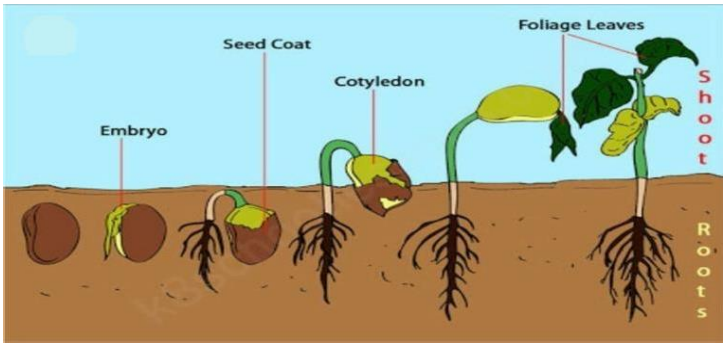
1. What is dispersal of seeds? What are the different agents of dispersal?

a. The process of scattering of seeds away from the mother plant is called dispersal of seeds.

b. The different agents of dispersal are:

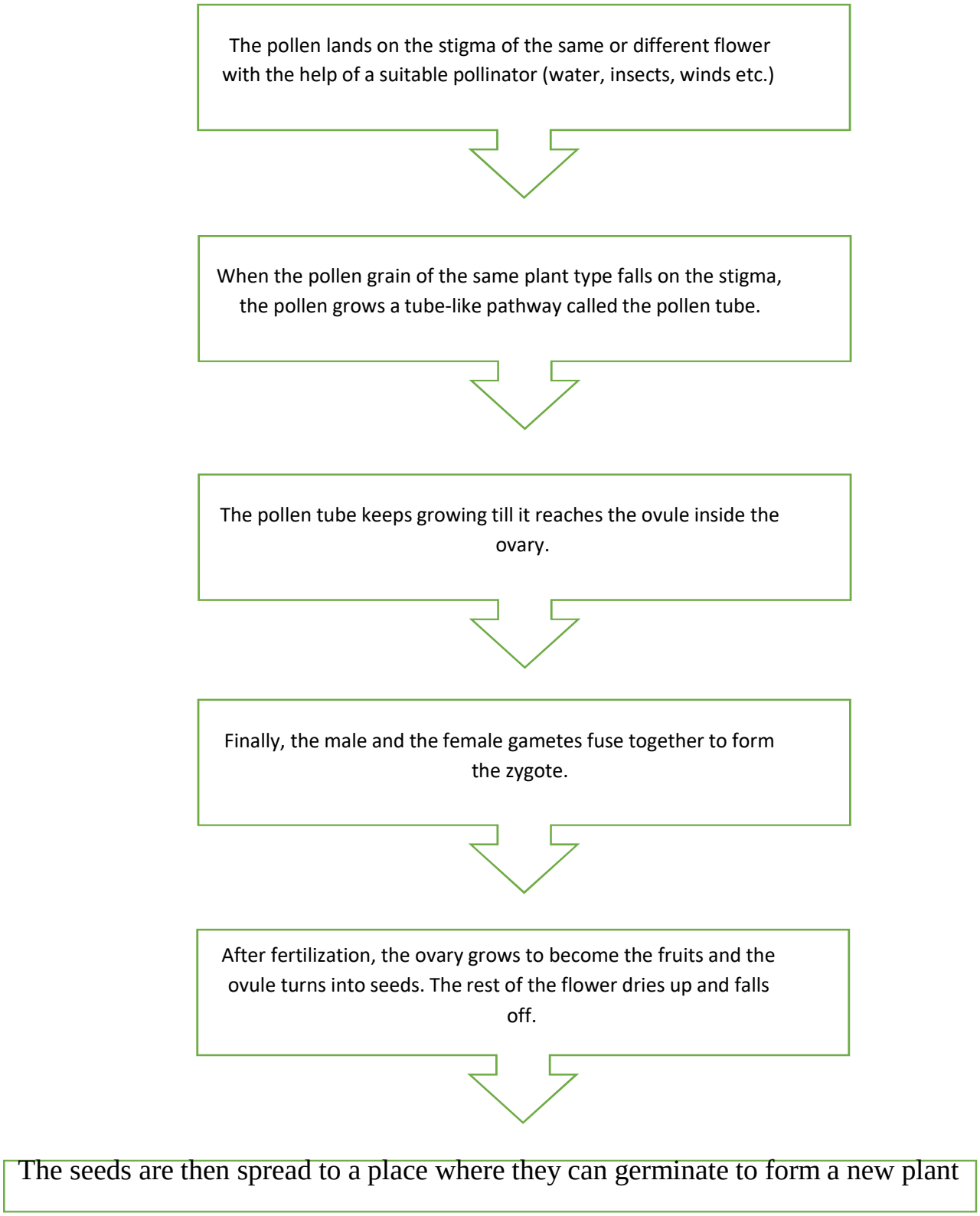
1. Wind (Ex- seeds of cotton drumstick and maple are dispersed by wind)
2. Water (Ex- seeds of coconut and lotus are dispersed by water)
3. Animals (Ex- seeds 0f cocklebur and cherry are dispersed by animals)
4. Dispersal by explosion (Ex- seeds of Bauhinia, Balsam and Peas disperse when dry, they burst open or explode)

2. Draw the diagram to show different stages of germination?



3. Write the help of a flowchart explain sexual reproduction in plants.

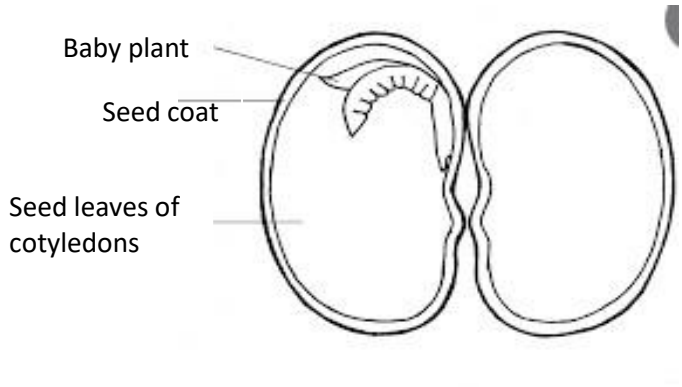
b. The process of fertilization in plants can be described in the following steps:



WORKSHEET

I. PICTURE BASED QUESTION:

Complete the label of the seed structure**:**



a. To germinate a seed does not need **Light**.

b. A seed can germinate in a**Warmth** place**.**

c. The seed coat covers and **the embrya** the seed**.**

d. The seed leaves store**food**.

e. Embryo is aslo called **Baby Plant.**

II. DEFINE THE STAGES OF GERMINATION AND LABEL THEM :

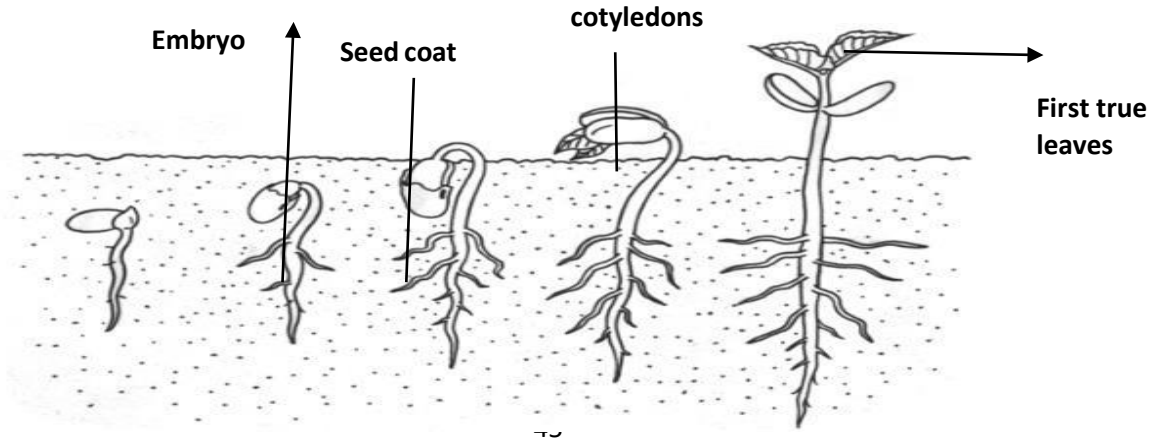
6. Seedcoat **The protective coat of a seed.**

7. Dicot seed **with two seeds leaves or cotyledons.**

8. Cotyledon **part of seed that store food for the baby plant.**

9. Foilage leaves **An ordinary green leaf as distinguished from floral leaves.**

10. Monocot seed**with one seed leaf or catyledons.**



WORKSHEET

I. STATE WHETHER THE FOLLOWING STATEMENTS ARE TRUE OR FALSE:

1. Dietary Fibres are also known as roughage. **True**

2. Minerals are needed by our body in large quantities. **False**

3. Our body prepares vitamin D in the presence of sunlight. **True**

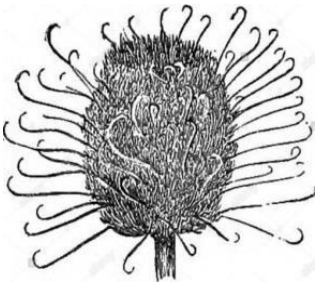
4. Osteoporosis is caused by the deficiency of vitamin C. **False**

5. Food items at the top of the food pyramid should be eaten in greater quantities. **False**

II. IDENTIFY THE SEED AND WRITE ITS MODE OF DISPERSAL:

1.  **Seed dispersal by wind**

2.  **Seed dispersal by water**

3.  **Seed dispersal by explosions**

CHAPTER 6

SOLIDS, LIQUIDS AND GASES

I. GIVE REASONS FOR THE FOLLOWING STATEMENTS:

1. Liquids and gases flow, virus solids do not.

The intermolecular forces are high in case of solids giving them a definite shape and making it rigid, thus solids do not flow. Whereas liquids and gases can flow because they have large intermolecular space and thus intermolecular attractions are very less.

2. For distillation that should be a large difference in the boiling points of the liquid components.

For distillation, there should be a large difference in the boiling points because liquid components vaporise at different temperatures and thus vapours can be cooled and liquid so formed can be collected separately.

II. ANSWER THE FOLLOWING QUESTIONS IN BRIEF:

1. When someone press room freshener in one corner of your room you can smell it in the other corner why does this happen?

The molecules of air move freely around each other. So, when someone sprays room freshener in one corner of a room the smell spreads and reaches every corner of the room.

2. Differentiate between miscible and immiscible liquids by using a suitable example.

- Liquids which mix together in all proportions and form a single layer are called miscible liquids. Example- Water and Alcohol.

- Liquids which do not mix with each other and form separate layers are called immiscible liquids. Example- Water and Oil

3. What do you mean by sedimentation and decantation?

b. The process in which the heavier solid substances mixed in a liquid settle down is called sedimentation.

c. The process of pouring out the liquid without disturbing the sediment is called decantation.

III. ANSWER THE FOLLOWING QUESTIONS IN DETAIL:

1. Why do solids have a fixed shape and volume? Give diagrams in support of your answer.

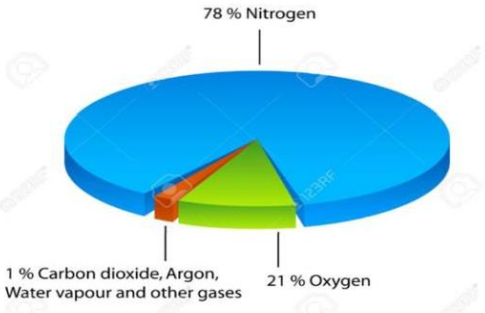
Solids have a definite volume and shape because particles in a solid vibrate around fixed locations. Strong intermolecular attractions between the particles in a solid restricttheir motion, keeping them in place.

2. Write a note on the composition of air. Create a pie chart in support of your answer.

a. 78% of the air in our atmosphere is composed of nitrogen. It is colorless, tasteless and odorless gas.

b. 21% of air is made up of oxygen. It is also a colorless, tasteless and odorless gas.

c. Other gases such as argon, carbon oxide, helium, neon and water vapor make up the remaining 1% of the atmosphere.



WORKSHEET

I. PICTURE BASED QUESTION:

1. What is meant by the term condensing?

To make more dense or compact. Reduce the volume or extent of.

Concentrate. To reduce to a shorter form.

Abridge: Condense your answer into a few words. T

To reduce to another and denser form, as a gas or vapor to a liquid or solid state.

2. How is the water going to the condenser different to the condenser that comes out?

It goes into a vapor and comes out as a liquid.

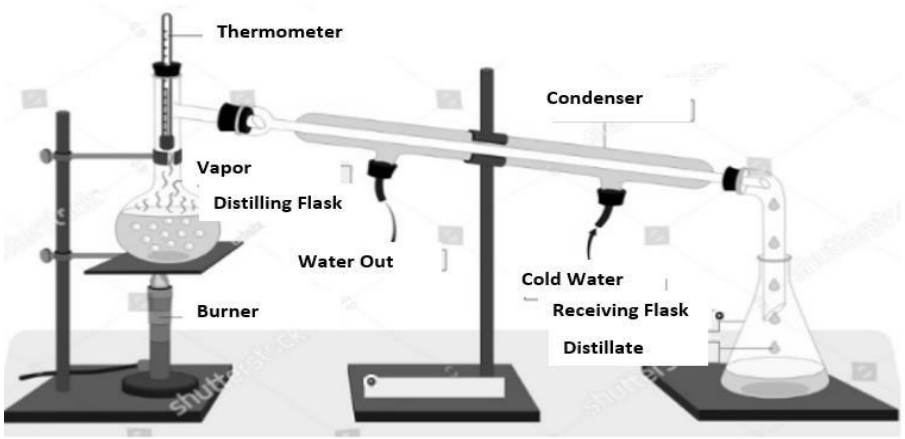
3. How does distillation separate a mixture of different liquids?

Typically, a mixture is heated, vapors are produced, separated, and then condensed back into a liquid, As a result, each component can be separately recuperated in different fractions.

4. Why distillations produce pure water, but filtration does not?

Filtration is used to separate large particles, but this process does not provide pure solutions as some impurities remain in the solution. On the other hand, distillation helps in the formation of pure water as it removes the impurities from the water or solution.

5. Label the Distillation apparatus.

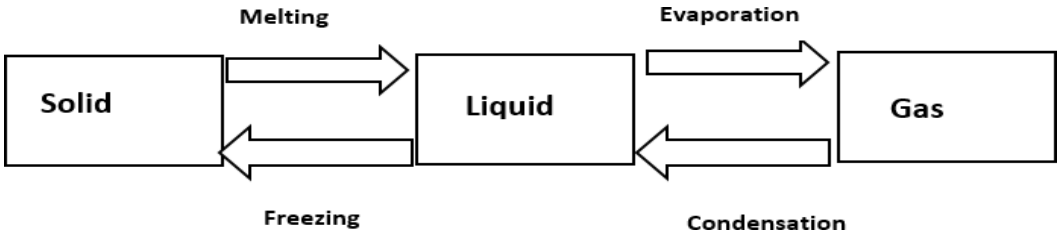


WORKSHEET

I. CHARACTERISTICS OF THE THREE STATES OF MATTER:

Characteristics	Solid	Liquid	Gas
Shape	Definite	Indefinite	Indefinite
Volume	Definite	Definite	Indefinite
Relative intermolecular interaction strength	Tightly Packed	Strongly Packed	Widely Packed
Relative particle positions.	Very Little Space	Little Space	Big Space

II.COMPLETE THE FLOWCHART BY DEFINING IT PROCESS:



IV. IDENTIFY THE FOLLOWING OBJECTS AS SOLIDS(S), LIQUIDS(L), GASES(G):

SOLIDS	LIQUIDS	GASES