3. MATTER AROUND US

Class: VI

Subject: Science

I. Choose the correct answer.

1. _____is not made of matter.

a. Gold ring b. Iron nail **c. Light ray** d. Oil drop

2. 200 ml of water is poured into a bowl of 400 ml capacity. The volume of water will be_____.

a. 400 ml b. 600 ml **c. 200 ml** d. 800 ml

3. Seeds from water-melon can be removed by _____ method.

a. hand-picking b. Filtration c. magnetic separation d. decantation

4. Lighter impurities like dust when mixed with rice or pulses can be removed by_____.

a. filtration b. Sedimentation c. decantation **d. winnowing**

5._____ is essential to perform winnowing activity.

a. Rain b. Soil c. Water **d. Air**

6. Filtration method is effective in separating _____ mixture.

a. solid-solid **b. solid-liquid** c. liquid-liquid d. liquid-gas

7. Among the following is _____not a mixture.

a. coffee with milk b. lemon juice

c. water d. ice cream embedded with nuts

II. Fill in the blanks.

1. Matter is made up of **Atoms.**
2. In solids, the space between the particles is less than in **Liquids and Gases.**
3. Grains can be separated from their stalks by **Threshing.**
4. Chillies are removed from 'Upma' by **Hand picking** method.
5. The method employed to separate clay particles from water is **Filtration.**
6. Water obtained from tube wells is usually **Impure** water.
7. Which among the following will get attracted to by magnet? (**safetypins**, pencil and rubber band).

III. State True or False. If false, correct the statement.

1. Air is not compressible. **False**
2. Liquids have no fixed volume but have no fixed shape. **False**
3. Particles in solids are not free to move. **False**
4. When pulses are washed with water before cooking, water is separated from them by Sedimentation. **False**

5. Strainer is a kind of Filter which is used to separate a liquid from solid. **True**

6. Grain and husk can be separated by winnowing. **True**

IV. Complete the given analogy.

1. Solid : Rigidity:: Gas : **Flexability**

2. Large Inter – particle space : Gas :: **little inter parts** : solid.

3. Solid : Definite shape :: **Liquid:** Shape of the vessel.

4. Husk- Grains : Winnowing:: Sawdust-Chalk piece: **Filtration**

5. Murukku from hot oil: **Filtration** :: coffee powder residue from decoction

6. Iron – Sulphur mixture: **Magnetic seperation** :: Mustard seeds from Urad-dhal : Rolling

V. Match the following.

A)

Property	Example
Breaks easily (Brittle)	Mud pot
Bends readily	Plastic wire
Can be stretched easily	Rubber band
Gets compressed easily	Cotton wool
Gets heated readily	Metal pan

B)

i .Separation of visible undesirable components	Rice and stone	Hand-picking
ii . Separation of heavier and lighter components	Husk and paddy	Winnowing
iii .Separation of insoluble impurities	Water mixed with chalk powder	Filtration
iv . Separation of magnetic components from non- magnetic	Iron impurities	Magnetic Separation
v .Separation of solids from liquids .	Sand and water	Decantation

VI. Answer very briefly.

1. Define the term matter.

Matter is defined as anything that occupies space and has mass. Matter is found in three major states: solid, liquid and gas.

2. How can husk or fine dust particles be separated from rice before cooking?

The lighter impurities float while heavier rice grains sink to the bottom. This is called **sedimentation**.

The water with the impurities is carefully poured down leaving clean rice at the bottom. This is called **decantation.**

3. Why do we separate mixtures?

A mixture is an impure substance and contains more than one kind of particles. so we have to separate mixture.

4. Give an example for mixture and justify your answer with reason.

Air is a mixture because it contains oxygen, nitrogen, carbon dioxide, water vapour, noble gases and other gases.

5. Define - Sedimentation.

Settling down of suspended, insoluble and heavy solid Particles (used to separate solid –liquid mixtures).

6. Give the main difference between a pure substance and an impure substance.

Pure substance:

(i) A pure substance can be an element or a compound and it can be made up of only one kind of particles.

(ii) Un Adulteration

Impure substance:

(i) A mixture is an impure substance containing two or more components physically mixed in any proportion.

(ii) Adulteration

VI. Answer briefly.

1. A rubber ball changes its shape on pressing. Can it be called a solid?

Yes. A solid has a certain shape and size. The shape of a rubber ball changes only if we squeeze it.

2. Why do gases not have fixed shape?

i) The particles in the gases are arranged far apart .

ii) They move freely

iii) They have the property of filling the entire part of a container by taking the shape of the container.

iv) So gases does not have fixed shape.

3. What method will you employ to separate cheese (Paneer) from milk? Explain.

a) Acidification.

b) Coagulation.

c) Separating.

d) Salting.

e) Shaping.

f) Ripening.

4. Look at the picture given below and explain the method of separation illustrated.

The method is called sieving. **Sieving** is used when we have to separate solid particles of different sizes.

Eg: bran from flour, sand from gravel etc.

5. How can you separate a large quantity of tiny bits of paper mixed with pulses / dal?

- We can separate the mixture of large quantity of tiny bits of paper and pulses / dal by winnowing.
- The lighter papers carried by the wind and heavier pulses and dals will fall closer and form a separate heap.

6. What is meant by food adulteration?

- Food adulteration is the process in which the quality of food is lowered either by the addition of inferior quality material or by extraction of valuable ingredient.

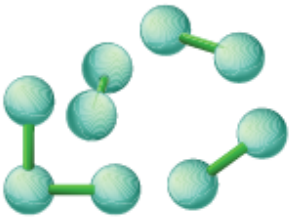
7. Mr. Raghu returns home on a hot summer day and wants to have buttermilk. Mrs. Raghu has only curd. What can she do to get buttermilk? Explain.

Mrs. Raghu has to take half a cup of curd, add half cup of water to it and mix well. Now , she can serve buttermilk .

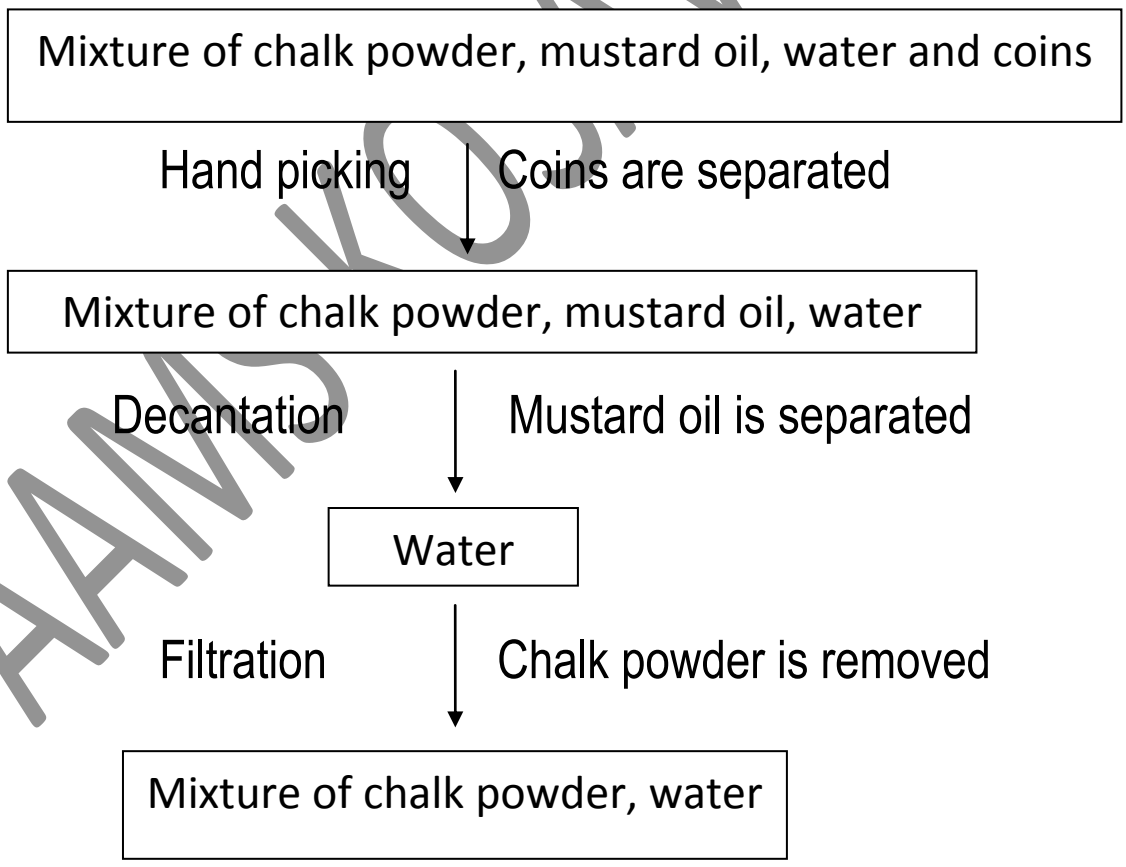
VII. Higher Order Thinking Questions

1. Distinguish the properties of solid, liquid and gas. Draw a suitable diagram.

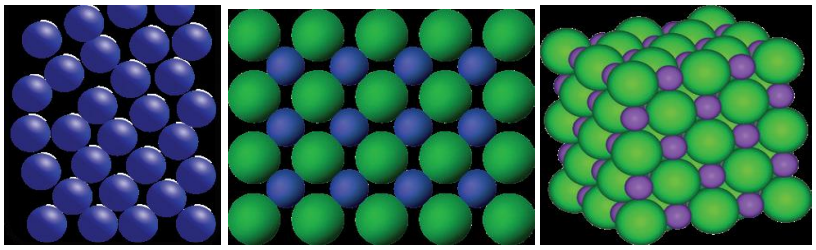
S.no.	Solids	Liquids	Gases
1.	Definite shape and volume	No definite shape. Liquids attain the shape of the vessel in which they are kept.	Gases have neither a definite shape nor a definite volume.
2.	Incompressible	Compressible to a small extent.	Highly compressible
3.	There is little space between solid particles. Particles are tightly packed or arranged.	These particles have a greater space between them. Particles are not tightly packed or arranged. They are free to move.	The space between gas particles is the greatest. Particles are very loosely packed or arranged.
4.	These particles attract each other very strongly.	The force of attraction between liquid particles is less than solid particles.	The force of attraction is least between gaseous particles.
5.	Particles of solid cannot move freely.	These particles move freely.	Gaseous particles are in a continuous, random motion.

Particles in a Solid	Particles in a Liquid	Particles in a Gas
		
In solid, the particles are tightly packed with very little space between them. Eg. Stone	Particles in liquids are arranged in a random or irregular way and the space between the particles is greater than that is in solids. Eg. Water	The particles in the gases are arranged far apart. They move freely. Eg. Air

2. Using suitable apparatus from your laboratory separate the mixture of chalk powder, mustard oil, water and coins. Draw a flow chart to show the separation process.



3. Justify your answer.



Arrangement of particles in three different phases of matter is shown above.

a) Which state is represented by Fig. 1?

Liquid state, is represented by Fig 1.

b) In which state will the inter particle attraction be maximum?

In Fig 3 the inter partial attraction will be maximum, because it is in solid state.

c) Which one of them cannot be contained in an open vessel?

Fig 2 cannot be contained in an open vessel, as it is in gaseous state.

d) Which one can take the shape of its container?

Fig 1 can take the shape of its container, as it is in liquid state.

4. Malar's mother was preparing to cook dinner. She accidentally mixed ground nuts with urad-dhal. Suggest a suitable method to separate the two substances so that Malar can have ground nuts to eat.

The ground nuts shall be separated by hand picking method , because they are in different size , when compared with urad- dhal.

5. In a glass containing some water, tamarind juice and sugar is added and stirred well. Is this a mixture? Can you tell why? Will this solution be sweet or sour or both sweet and sour?

Yes. It's a mixture. It has more than one kind of particles i.e tamarind, water and sugar are mixed together.

This solution will be sweet and sour solution.