

**Class: VI**  
**Subject: Chemistry**  
**Topic: Pure Substances and Mixtures**  
**No. of Questions: 20**

1.  $H_2O$  and  $H_2O_2$  are both \_\_\_\_\_ .

Ans.  $H_2O$  and  $H_2O_2$  are both compounds.

2. Which of the following method is used to separate a mixture of cooking oil and water?

- (a) Filtration
- (b) Separation using a separating funnel
- (c) Fractional distillation
- (d) Centrifugation

Ans. (B)

Cooking oil and water are immiscible, which forms two separate layers. So, they can be separated by using a separating funnel.

3. How are the following mixture separated? (Name the technique only).

- (a) Sal ammoniac and common salt.
- (b) Cream from milk.
- (c) Coloured dyes in black ink.

Ans. (a) Sublimation  
(b) Centrifugation  
(c) Chromatography

4. A homogeneous solution in which the size of the particle is about \_\_\_\_\_ is called a true solution.

Ans.  $10^{-10}$  m

5. Which of the following methods is not used in the separation of two gaseous mixtures?

- (a) Solvent extraction
- (b) Diffusion
- (c) Liquefaction
- (d) Boiling

Ans. D

A liquid-gas mixture is separated by boiling it. Rest are the methods used for the separation of two gaseous mixtures.

6. What is decantation?

Ans. The mixture containing insoluble solid and a liquid is allowed to stand undisturbed for some time. The insoluble solid substance (sediment) settles down and a clear liquid (supernatant liquid) is left standing. The clear water (supernatant liquid) is then poured out carefully into another beaker, leaving the sediments undisturbed. This process is known as decantation.

7. How is centrifugation done? Describe the process of separation by centrifugation.

Ans: Centrifugation is done by using a machine called centrifuge.

In the method of centrifugation, the mixture of fine suspended particles in a liquid is taken in a test-tube. The test-tube is placed in a centrifuge machine and rotated rapidly for some time. As the mixture rotates round rapidly, centrifugal force acts on the heavier suspended particles in it and forces them down to the bottom of the test-tube. The clear liquid, being lighter, remains on top.

8. (a) Define sublimate.

(b) Where is the cotton plug placed in the sublimation apparatus? What is the use of cotton plug in sublimation?

Ans. (a) The solid substance that is obtained by cooling the vapours of the volatile substance obtained after heating is known as 'sublimate'.

(b) A loose cotton plug is put in the upper, open end of the funnel. It is put to prevent the vapours of the volatile substance from escaping into the atmosphere.

9. Which method is used to separate cream from milk?  
(a) Adsorption  
(b) Centrifugation  
(c) Distillation  
(d) Crystallization

Ans. B

Centrifugation technique is used to separate components of a milk (mixture) having different densities.

10. Give two examples each of homogeneous and heterogeneous mixture.

Ans: Examples of homogeneous mixture are - Alloys, Salt in water.  
Examples of heterogeneous mixture are - Gun powder, Oil in water.

11. Name the elements present in the following compounds:  
Baking soda and Sugar

Ans.

Name of the compound	Elements present
1. Baking soda ( $\text{NaHCO}_3$ )	1. Sodium, Hydrogen, Carbon and Oxygen
2. Sugar ( $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ )	2. Carbon, Hydrogen and Oxygen

12. What is sublimation? What types of mixtures can be separated using this technique?

Ans. The process of changing of a solid directly into vapours on heating and of vapours into solid on cooling is called sublimation. The process of sublimation is used to separate those substances from a mixture which sublime on heating.

13. What is atomicity? Give one example each of mono atomic, diatomic, tri atomic and tetra atomic molecule.

Ans. Atomicity is the number of atoms present in a molecule of an element.

Example:

Monoatomic molecule - Helium ( $\text{He}$ )

Diatomic molecule - Oxygen ( $\text{O}_2$ )

Triatomic molecule - Ozone ( $\text{O}_3$ )

Tetratomic molecule - Phosphorous ( $\text{P}_4$ )

14. An amalgam is a solution of a \_\_\_\_\_ .
- (a) gas in solid
  - (b) solid in liquid
  - (c) solid in solid
  - (d) liquid in solid

Ans. D

An amalgam is a solution of a liquid in solid.

15. Fill in the blanks:
- (a)
    - (i) Inter-particle space between the \_\_\_\_\_ molecule is maximum.
    - (ii) Liquids flow from \_\_\_\_\_ to \_\_\_\_\_ level.
    - (iii) Solids have \_\_\_\_\_ density.
    - (iv) \_\_\_\_\_ sublimates on heating and leaves behind no residue.
    - (v) Molecules of gas are \_\_\_\_\_ from each other.
  - (b) How will you separate the following mixtures?
    - (i) Benzene and toluene
    - (ii) Water and carbon tetrachloride
    - (iii) Iodine and sand
    - (iv) Potassium nitrate and potassium chlorate
    - (v) Methanol and ethanol

Ans. (a)

- (i) gaseous
- (ii) higher, lower
- (iii) maximum
- (iv) Ammonium chloride
- (v) far apart

(b)

- (i) By fractional distillation
- (ii) By separating funnel
- (iii) By sublimation
- (iv) By fractional crystallization
- (v) By fractional distillation

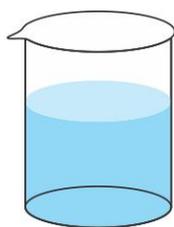
16. A \_\_\_\_\_ is a homogeneous material with a definite, invariable chemical composition and definite, invariable physical and chemical properties.

Ans. Pure substance

17. Which of the following is not an example of heterogeneous mixture?



Oil in water



Salt in water



Gun powder



Mixture of sulphur powder and iron filings

- (a) Oil in water
- (b) Salt in water
- (c) Gun powder
- (d) Mixture of sulphur powder and iron filings

Ans. B

Salt solution is a homogenous mixture. The remaining three are example of heterogeneous mixtures. They have different compositions that are physically distinct.

18. Which of the following properties is not applicable to pure substances?

- (a) Fixed composition.
- (b) Presence of single type of particles.
- (c) Presence of different types of particles.
- (d) Homogeneous throughout the mass of the substance.

Ans. (c)

A pure substance consists of same type of particles, has fixed composition and is homogeneous throughout its mass.

19. What is the principle behind the process of centrifugation?
- (a) Lighter particles are forced to the bottom and denser particles stay at the top when spun rapidly.
  - (b) Particles are separated based on the difference in colour.
  - (c) Denser particles are forced to the bottom and lighter particles stay at the top when spun rapidly.
  - (d) Particles are separated based on the difference in temperature.

Ans. (c)

The principle of centrifugation is that denser particles are forced to the bottom and lighter particles stay at the top when the mixture is spun rapidly.

20. The clear liquid which is left behind in the beaker after settling down of the sediments is called:
- (a) Solution
  - (b) Supernatant liquid
  - (c) Sediment
  - (d) Solvent

Ans. (b)

The clear liquid which is left behind in the beaker after settling down of the sediments is called as supernatant liquid.