

CHEMISTRY QUESTIONS FOR CLASS 9

(Solved Intext and Exercise Questions)

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Chapter 2: Is Matter Around Us Pure

14. Explain the following giving examples.

(a) Saturated solution (b) Pure substance (c) Colloid (d) suspension

Solution:

(a) Saturated solution: It is that state in a solution at a specific temperature when a solvent is no more soluble without an increase in the temperature. Example: Excess carbon leaves off as bubbles from a carbonated water solution saturated with carbon.

(b) Pure substance: A substance is said to be pure when it comprises of only one kind of molecules, atoms or compounds without adulteration with any other substance or any divergence in the structural arrangement. Example: Sulphur, diamonds

(c) Colloid: A colloid is a homogenous non-crystalline substance that comprises of ultramicroscopic particles of a particular substance that would be scattered through another substance. The particles in a colloid cannot be segregated via simple filtration or centrifugation such as suspension and do not settle. Example: Blood, Ink.

(d) Suspension: It is a heterogeneous mixture that comprises of solute particles that are insoluble but are suspended in the medium. These particles that are suspended are not microscopic but visible to bare eyes and are large enough (usually larger than a micrometer) to undergo sedimentation.

15. Classify each of the following as a homogeneous or heterogeneous mixture.

soda water, wood, air, soil, vinegar, filtered tea.

Solution: The following is the classification of the given substances into homogenous and heterogeneous mixture.

Homogenous mixture	Heterogeneous mixture
Soda water	wood
vinegar	soil
Filtered tea	
Air	

16. How would you confirm that a colourless liquid given to you is pure water?

Solution: We can confirm if a colourless liquid is pure by setting it to boil. If it boils at 100°C it is said to be pure. But if there is a decrease or increase in the boiling point, we infer that water has added impurities hence not pure.

17. Which of the following materials fall into the category of “pure substance”?

- (a)Ice (b)Milk (c)Iron (d)Hydrochloric acid
(e)Calcium oxide (f)Mercury (g)Brick (e)Wood(f)Air.

Solution:

Following substances from the above-mentioned list are pure substances:

- Iron
- Ice
- Hydrochloric acid
- Calcium oxide
- Mercury

18. Identify the solutions among the following mixtures.

- (a) Soil
(b) Sea water
(c) Air
(d) Coal
(e) Soda water

Solution:

The following are the solutions from the above-mentioned list of mixture:

- Sea water
- Air
- Soda water

19. Which of the following will show the “Tyndall effect”?

- (a) Salt solution
(b) Milk
(c) Copper sulphate solution
(d) Starch solution.

Solution: Tyndall effect is exhibited by only milk and starch solution from the above-mentioned list of solutions.

20. Classify the following into elements, compounds and mixtures.

- (a) Sodium (b) Soil (c) Sugar solution (d) Silver
(e) Calcium carbonate (f) Tin (g) Silicon (h) Coal
(i) Air (j) Soap (k) Methane (l) Carbon dioxide (m) Blood.

Solution:

Elements	Compounds	Mixture
Sodium	Calcium carbonate	Soil
Silver	Carbon dioxide	Sugar solution
Tin	Methane	Coal
Silicon		Air
		Blood
		Soap

21. What is meant by a substance?

It is a pure single form of matter. A substance has definite properties and compositions. Example – Iron

22. What type of mixtures are separated by the technique of crystallization?

The technique of crystallization is used to separate solids from a liquid solution. It is linked to precipitation, but in this technique, the precipitate is achieved in a crystal form which exhibits extremely high levels of purity. The principle of crystallization can be applied to purify impure substances.

23. How would you confirm that a colourless liquid given to you is pure water?

We can confirm if a colourless liquid is pure by setting it to boil. If it boils at 100°C it is said to be pure. But if there is a decrease or increase in the boiling point, we infer that water has added impurities hence not pure.
