INDIAN SCHOOL AL WADI AL KABIR		
Class: IX	**Department: SCIENCE 2023-24** **SUBJECT : CHEMISTRY**	**Date: 05.09.2023**
Worksheet No.:2 **WITH ANSWERS**	**TOPIC :** **IS MATTER AROUND US PURE?**	**Note: A4 FILE FORMAT**
NAME OF THE STUDENT:	**CLASS & SEC:**	**ROLL NO.**

I. MULTIPLE CHOICE QUESTIONS (1 MARK)

1. Which of the following is a pure substance?
(a) Air
(b) Milk
(c)Sea water
(d) Sugar

2. In which of the following is the dispersed phase is the liquid and the dispersing medium is gas
(a) Soap foam
(b) Cloud
(c) Smoke
(d) Milk

3. Which of the following is a homogeneous mixture?
(a) Sand
(b) Oil and water
(c) Salt and sand mixture
(d) Air

4. Which of the following property does not describe a compound?
(a) It is composed of two or more elements
(b) It is a pure substance
(c) It cannot be separated into its constituents by physical methods
(d) It is mixed in any proportion by mass.

5. Which of the following is a physical change?
(a) Rusting of iron
(b) Cooking of food
(c) Burning of wood
(d) Melting of ice

6. Tina passes light beams through two liquid mixtures in separate glasses. The picture shows Tina's observations.

Based on the behaviour of the light beam what are liquids 1 and 2?

	Liquid 1	Liquid 2
(a)	solution	colloid
(b)	colloid	suspension
(c)	solution	suspension
(d)	suspension	colloid

7. Which of these is an alloy?
(a) silver
(b) copper
(c) bronze
(d) aluminium

II. ASSERTION REASON TYPE QUESTIONS (I MARK)

For the following questions, two statements are given- one labelled *Assertion* (A) and theother labelled *Reason* (R). Select the correct answer to these questions from the codes (i),(ii), (iii) and (iv) as given below

(i) Both A and R are true and R is the correct explanation of the assertion.
(ii) Both A and R are true but R is not the correct explanation of the assertion.
(iii)A is true but R is false.
(iv)A is false but R is true.

8. Assertion (A): Pure substances have fixed melting and boiling points.
Reason (R): The particles in a pure substance are all of the same kind and have the same chemical properties.

9. Assertion (A): A mixture can be separated into its components by physical methods.
Reason (R): A chemical change is required to separate the components of a mixture.

10. Assertion (A): A solution is a homogeneous mixture.
Reason (R): The components of a solution are evenly distributed throughout the solution.

III. Very short answer type questions

11. Prachi took 50 mL of water in two beakers at room temperature and added sodium chloride to one beaker while sugar to the other, till no more solute would be dissolved. Then she heated the contents of the beakers and added more solutes in them.

(a) Will the amount of salt and sugar that can be dissolved in water at given temperature same?

(b) What will you expect to happen if she cools the contents of the beakers? Justify your answer.

12. Give two differentiating points between an element and a compound. Write one example each

13 What are metalloids? Give two examples

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IV. Short answer type questions

14. Identify the dispersed phase and dispersing medium in the following colloids.

a) Fog
b) Cheese
c) Coloured gemstone

15. What would you observe when

(a) a mixture of iron filling and Sulphur powder is heated strongly.

(b) A saturated solution of potassium chloride prepared at 600C is allowed to cool at room temperature

16. Give any three differences between mixture and compound

V Long answer type questions

17. Three students A, B and C prepared mixtures using chalk powder, common salt and milk respectively in water. Whose mixture:

i) would not leave residue on filter paper after filtration?
ii) would show Tyndall effect?
iii) would give transparent/clear solution?
iv) would settle down at the bottom when left undisturbed?
v) could be filtered by filter paper?

18. Identify the physical and chemical changes from the following

a. heating the mixture of iron and sulphur
b. ripening of fruits
c. dissolution of salt in water
d. Rusting of iron-chair
e. making egg omlets.

19. (a)List any three properties of colloids and mention any two properties in which colloids differ from suspension.

(b) State what is tyndall effect? which of the following solution will show tyndall effect?

Starch solution, sodium chloride solution, tincture iodine, air

VI PASSAGE BASED /CASE STUDY BASED QUESTIONS

20. A teacher instructed the students to prepare 60% (mass by mass) solution of Sodium hydroxide. There are 2 components in a solution – Solute and solvent
    a. How would the students prepare 60% solution of Sodium hydroxide?
    b. Identify the solute and solvent of Sodium hydroxide solution
    c. Will this solution show Tyndall effect? Explain.
    d. Would you be able to filter out Sodium hydroxide solute from the solution? Give reason.

21. Priya was dissolving sugar in water. After one point she observed that the sugar was not getting dissolved in the water anymore. She came to know the concept of saturated and unsaturated solutions.
    a. How can we change a saturated solution to unsaturated solution without changing the volume of the solvent?
    b. Define saturated solution.
    c. How can we obtain crystals of the solute from the supersaturated solution?
    d. Define solubility of the liquid

Q. No.	**ANSWERS**
1.	(d) Sugar
2.	(b) Cloud
3.	(d) Air
4.	(d) It is mixed in any proportion by mass
5.	(d) Melting of ice
6.	(b) Liquid 1 – Colloid Liquid 2 – Suspension
7.	(c) Bronze
8.	(i) Both A and R are true and R is the correct explanation of the assertion
9.	(iii) A is true but R is false
10.	(i) Both A and R are true and R is the correct explanation of the assertion
11.	(a) No (b) Crystals of sugar and salt will be formed in the respective container
12	<table><tr><td>Elements</td><td>Compounds</td></tr></table>

Elements are pure substances which are composed of only one type of atom.	Compound are substances which are formed by two or more different types of elements that are united chemically in fixed proportions.
Elements cannot be broken down by chemical reactions.	Compounds can be easily separated into simpler substances by chemical reactions.
Example – Iron Sodium	Example – Calcium carbonate Water

13 Metallloids are chemical elements whose physical and chemical properties fall in between the metal and non-metal categories. Eg - Boron, germanium, silicon

14

Colloid	Dispersed phase	Dispersing medium
Fog	Liquid	Gas
Cheese	Solid	Liquid
Gemstone	Solid	Solid

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15 (a) A black mass of compound Iron sulphide is obtained
(b) The crystals of the salt is obtained

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Compounds	Mixture
Compounds are substances which can be formed by chemically combining two or more elements.	Mixtures are substances that are formed by physically mixing two or more substances.
The chemical composition of compounds is always fixed.	A mixture can have a variable composition of the substances forming it.
Compounds are always homogeneous in nature	Mixtures can either be homogeneous or heterogeneous in nature.

17 (i) B and C
(ii) A and C

<table>
<tr><td></td><td>(iii) B
(iv) A
(v) A</td></tr>
<tr><td>18</td><td>a. Chemical change
b. Chemical change
c. Physical change
d. Chemical change
e. Chemical change</td></tr>
<tr><td>19</td><td>a.
<table>
<tr><td>Colloid</td><td>Suspension</td></tr>
<tr><td>Particle size between 1-100 nm</td><td>Particle size more than 100 nm</td></tr>
<tr><td>Cannot be separated using filtration</td><td>Can be separated using filtration</td></tr>
<tr><td>Quite stable</td><td>Unstable. Settles down.</td></tr>
</table>
b. Tyndall effect is the scattering of a light beam by a medium containing colloids or suspensions
Starch solutions will show Tyndall effect</td></tr>
<tr><td>20</td><td>a. 60 gm of Sodium hydroxide dissolved in 40 gm of water to obtain 100 gm of solution
b. Solute – Sodium hydroxide Solvent – Water
c. As it is a true solution it will not show Tyndall effect
d. As the particle size is very small the sodium hydroxide solution can’t be filtered</td></tr>
<tr><td>21</td><td>a. By increasing the temperature
b. When no more solute cannot be dissolved in a fixed amount of solvent at a particular temperature is called Saturated solution
c. By decreasing the temperature of the super saturated solution
d. The amount of solute dissolved present in a saturated solution is called the solubility.</td></tr>
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