

UNIT 3: Chemical Composition of Matter

Section: A

1. D 7. D 13. A 19. A 25. D
 2. C 8. C 14. D 20. C 26. D
 3. B 9. C 15. C 21. D 27. B
 4. B 10. B 16. A 22. C 28. D
 5. D 11. A 17. C 23. D 29. D
 6. C 12. A 18. D 24. C 30. A

Section: B

1.

Elements	Mixtures	Compounds
Oxygen	Seawater	Fertilisers
Iron	Brass	Calcium oxide
Chlorine	Ink	Alcohol
Phosphorous	Milk	Water vapour

2. (a)

Element	Symbol
Calcium	Ca
Iron	Fe
Potassium	K

- (b) A compound can be separated into their constituents by chemical methods, but an element cannot be separated by any means as it is made up of only one type of atom.
3. (a) The maximum amount of solute which can dissolve in a fixed amount of solvent at a given temperature.
 (b) The solubility of solids in liquids usually increases with increasing temperature. The solubility of gases in liquids usually decreases with increasing temperature.

4. (a)

A	B
Salt water	Slurry
Wine	Calamine lotion
Coca-cola	Muddy water
Bronze	Eye drops

- (b) A : Solutions
 B : Suspensions
5. The three factors that affect the solubility of a solid are, the nature of the solute, the nature of the solvent and the temperature of the solvent.
6. (a) Number of times of stirring
 (b) Time taken for the sugar to dissolve completely.
 (c) Volume of water, mass of sugar and temperature.
 (d) The rate of solubility increases with the number of times of stirring.
 (e) Use powdered sugar and increase the temperature of water .
7. (a) By stirring
 (b) Increase the temperature of the water, Increasing the surface area in contact with water, by making the salt powdered.

8. (a) They can be classified as:
metals and non-metals, solids and gases.

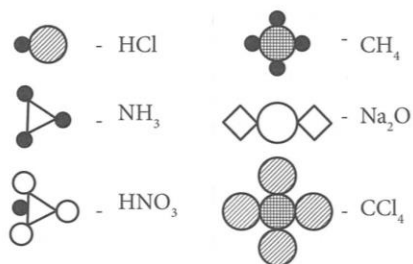
(b)

<i>Metals</i>	<i>Non-metals</i>
Sodium	Carbon
Zinc	Chlorine
Calcium	Oxygen
Iron	Iodine
Silver	Sulfur
Potassium	Nitrogen

<i>Solids</i>	<i>Gases</i>
Sodium	Chlorine
Zinc	Oxygen
Calcium	Nitrogen
Iron	
Silver	
Potassium	
Carbon	
Sulfur	
Iodine	

- (c) Sodium - Na
 Chlorine - Cl
 Oxygen - O
 Zinc - Zn
 Iodine - I
 Calcium - Ca
 Iron - Fe
 Nitrogen - N
 Silver - Ag
 Potassium - K

9.



10.

	<i>Properties</i>	<i>Element</i>	<i>Compound</i>	<i>Mixture</i>
(i)	Do they have fixed melting and boiling points?	Yes	Yes	No
(ii)	Can they be separated?	Cannot be separated	Separated only by chemical reaction	Separated by physical methods
(iii)	Are they represented by symbols or formulas?	Represented by Symbols	Represented by formulas	Cannot be represented by symbols or formulas
(iv)	What is their composition?	Made up of only one component	Made up of a fixed composition of elements	No fixed composition
(v)	Are they made up of atoms and/or molecules?	They can be atoms or molecules	Molecules	atoms and/or molecules

Section: C

1. (a) The substance which dissolves the solute or solutes is called a solvent.
(b) Water and alcohol

2. (i) A and B
(ii) S
(iii) P and R
(iv) R

3. Home : Solvent → water – cooking, washing and bathing.
Solution → liquid detergents – cleaning.
Industry : Solvent → alcohol – thinner, paint, dyes.
Solution → acids
Agriculture : Solvent → water – watering of plants.
Solution → nutrient solution for hydroponics.