

Chemistry

Full Syllabus Test

VIII (ICSE)

Topic: Full Syllabus

Full Marks: 80

Time: 2 hrs.

SECTION – A

(Compulsory)

1. (a) (alkali, hydroxide, iron, oxide, oxygen, potassium, sodium, water, powder, magnesium) 5
Metals can be put in order of reactivity using their activity with _____ as a guide. Alkali metals such as _____ and _____ react rapidly with water as well as _____. The _____ metals react with cold water to form _____. Less reactive metals such as _____ will only react with oxygen if they are in wire or in _____ form. Iron reacts with steam to form iron _____, _____ is a metal that reacts with steam and hot water.
- (b) Balance the following equations: 5
 - (i) $\text{CaC}_2 + \text{N}_2 \rightarrow \text{CaCN}_2 + \text{C}$
 - (ii) $\text{CuO} + \text{NH}_3 \rightarrow \text{Cu} + \text{H}_2\text{O} + \text{N}_2$
 - (iii) $\text{PbO}_2 + \text{HCl} \rightarrow \text{PbCl}_2 + \text{H}_2\text{O} + \text{Cl}_2$
 - (iv) $\text{Cl}_2 + \text{H}_2\text{O} + \text{SO}_2 \rightarrow \text{HCl} + \text{H}_2\text{SO}_4$
 - (v) $\text{C}_2\text{H}_5\text{OH} + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
- (c) Match the names of ions and radicals with their correct answers. 5
A: Hg^{2+} ; B: MnO_4^- ; C: Sn^{4+} ; D: ZnO_2^{2-} ; E: Sn^{2+} ; F: Fe^{3+} ; G: SO_3^{2-} ; H: N^{3-} ; I: NO_2^{1-} ; J: MnO_4^{2-} ; K: $\text{Cr}_2\text{O}_7^{2-}$; L: ClO_3^{1-}
 - (i) Chlorate
 - (ii) Permanganate
 - (iii) Stannous
 - (iv) Zincate
 - (v) Nitride
 - (vi) Mercuric
 - (vii) Stannic
 - (viii) Nitrite
 - (ix) Sulphite
 - (x) Dichromate
- (d) Name the method of separation for the following mixtures: 5
 - (i) Carbon + Sulphur
 - (ii) Ammonium chloride + sodium chloride
 - (iii) Iron + copper
 - (iv) Ethanol + water
 - (v) Water + Carbon tetrachloride
- (e) Explain the term 'compounds'. 5
 - (i) Name three compounds containing sodium.
 - (ii) State why water is considered a compound.
 - (iii) Give two differences between elements and compounds.
- (f) Use the reactivity series to predict if each mixture will react. 5

	Reactants		Reaction
(i)	Iron oxide	Magnesium	✓
(ii)	Copper sulphate	Zinc	
(iii)	Potassium	Hydrochloric acid	

(iv)	Gold	Iron chloride	
(v)	Calcium	Sodium chloride	
(vi)	Calcium	Oxygen	

(g) Write the molecular formula for the following compounds. 5

- (i) Ammonium sulphate
- (ii) Sodium zincate
- (iii) Calcium phosphate
- (iv) Sodium hypochlorite
- (v) Magnesium sulphate

(h) State which type of mixture A to E are generally separated using the methods i to x. 5

A: Two solids; B: A solid and liquid; C: Two liquids; D: A liquid and a gas; E: Two gases

- (i) Use of solvent and filtration
- (ii) Sedimentation
- (iii) Boiling an aqueous solution of a gas
- (iv) Fractional distillation
- (v) Fractional crystallization
- (vi) Evaporation
- (vii) Diffusion
- (viii) Sublimation
- (ix) Distillation
- (x) Use a separating funnel

SECTION – B (Answer any four)

2. (a) Zinc is more reactive than copper. 5

- (i) State two observations that you can make when zinc reacts with aqueous copper (II) sulphate.
- (ii) State the molecular equation for this reaction.
- (iii) What type of reaction is this?

(b) Give reasons for the following: 5

- (i) Solids, liquids and gases are considered as matter but light is not.
- (ii) On heating a solid at its melting point the inert – particle space increases.
- (iii) All chemical equations must be balanced.

3. (a) Draw a flowchart to show separation of components present in a given mixture: 4

- (i) Sand, sawdust, salt and ammonium chloride.
- (ii) Iron, Calcium carbonate and table salt.

(b) Name two salts each responsible for: 2

- (i) Temporary hardness
- (ii) Permanent hardness

(c) Write a balanced chemical equation for removal of permanent hardness.

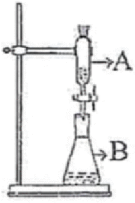
(d) $2\text{SO}_2 + \text{O}_2 \xrightarrow{\text{Pt}[450^\circ\text{C}-500^\circ\text{C}]} 2\text{SO}_3$ 3

- (i) State two informations provided by this equation.
- (ii) Mention one limitation of this equation.

4. (a) (i) Define solubility. (2 + 1 + 2)

(ii) How does solubility of a gas change with increase in temperature?

(iii) 'The solubility of sugar in water at 25°C is 204 gm per 100 ml of water'. What do you understand from the above equation?

- (b) (i) State the equation for preparation of phosgene gas. 2
(ii) Where is phosgene gas used?
- (c) (i) Give one example to show that a change can be desirable and undesirable at the same time. 3
(ii) The gas cylinder we use at home has LPG in the form of a liquid. However, when we switch on a stove it first converts to a gas which burns. What form of change is this? Explain with reason.
5. (a) The diagram represents an apparatus used for separating liquid – liquid mixtures. 5
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- (i) Name the apparatus seen in the diagram for separating liquid – liquid mixture.
(ii) State the type of liquids separated by using the apparatus.
(iii) If oil and water are to be separated, what will be present in B?
(iv) Can methyl and ethyl alcohol be separated by this method? Give reason.
(v) Can cream and milk be separated by this method? Give reasons.
- (b) Complete the following reaction and balance them. 5
- (i) $\text{Zn} + \text{HCl} \rightarrow$
(ii) $\text{CuCO}_3 + \text{HNO}_3 \rightarrow$
(iii) $\text{Al} + \text{Fe}_2\text{O}_3 \rightarrow$
(iv) $\text{Ca} + \text{H}_2\text{O} \rightarrow$
(v) $\text{Fe} + \text{H}_2\text{O} \rightarrow$
6. (a) Give five differences between compounds and mixtures. 5
(b) Differentiate between the following $[\text{H}]$, H_2 , H^{1+} . 3
(c) Name a metal which is liquid at room temperature and non-metal which conducts electricity. 2
7. (a) Differentiate between: 4
(i) Evaporation and boiling
(ii) Melting and sublimation
(b) Draw a diagram to show the states of matter and processes that change them. (Add the words melting, boiling, condensing, freezing, subliming, deposition) 4
(c) According to particle theory, why do liquids flow but solids do not? 2
8. (a) **Name:** 5
(i) a non-metal which is lustrous
(ii) a liquid metal
(iii) a liquid non-metal
(iv) the hardest naturally occurring substance
(v) an inert gas
(b) **What do the symbols present in a chemical equation mean:** 5
(i) $\rightarrow$
(ii) $\rightleftharpoons$
(iii) (s)
(iv) (l)
(v) (aq)