

GREENLAWNS SCHOOL, WORLI
FINAL EXAMINATION: 2016-17
CHEMISTRY

Std: IX
Date: / /2017

Marks: 80
Time: 2 hrs

Answers to this paper must be written on the paper provided separately. You will **not** be allowed to write during the first **15** minutes. This time is to be spent in reading the Question paper. The time given at the head of this paper is the time allowed for writing the answers.

Section I is compulsory. Attempt **any four** questions from **Section II**. The intended marks for questions or parts of questions are given in brackets [].

SECTION I (40 Marks)

Attempt all questions from this Section

Question 1

- a) Name the following: [5]
- i. Scientist who arranged elements in groups of three called 'triads'.
 - ii. Colour of Nessler's reagent in ammonia.
 - iii. Substances which absorb moisture from the atmosphere but do not change their state.
 - iv. The atom which reacts with oxygen to form ozone.
 - v. Catalyst used for hydrogenation of oil.
- b) Explain the following terms: [5]
- i. Green house effect
 - ii. Supersaturated solution
 - iii. Modern Periodic Law
 - iv. Acid rain
 - v. Transition elements
- c) What will you observe when: [5]
- i. Magnesium reacts with hot or boiling water.
 - ii. Zinc nitrate is strongly heated in a hard glass test tube.
 - iii. Acid rain falls on plants.
 - iv. Hydrochloric acid is added to silver nitrate solution followed by addition of ammonium hydroxide solution.
- d) Give balanced equations for the following: [5]
- i. Steam is passed over red hot iron.
 - ii. Conversion of zinc to sodium zincate.
 - iii. Smelting plants in which metallic sulphides are roasted in air.
 - iv. Passage of sulphur dioxide through lime water.
 - v. Preparation of hydrogen in laboratory.
- e) Give a chemical test to distinguish between the following: [5]
- i. Hydrogen sulphide and sulphur dioxide.
 - ii. Hydrogen and oxygen.
 - iii. Sodium sulphide and sodium carbonate.
 - iv. Chlorine and nitrogen dioxide.
 - v. Hydrogen chloride and ammonia.

- f) Give reasons for the following: [5]
- Mendeleeff's periodic table was not accepted.
 - Nitric acid is not used in the preparation of hydrogen from metals.
 - Ice floats on water.
 - Destruction of ozone layer is harmful for humans.
 - Hydrogen gas is collected by downward displacement of water in laboratory.
- g) Fill in the blanks: [5]
- Groups 13 to 16 are called _____ elements.
 - Electrolysis of brine liberates _____ as a by-product at the cathode.
 - _____ scale measures acidity or alkalinity of a solution.
 - Paraffin wax dissolves in _____
 - Temporary and permanent hard water can be softened by using _____
- h) Give two examples of each: [5]
- Drying agents
 - Metalloids present in period 2 and 3.
 - Renewable energy sources
 - Solids whose solubility decreases with rise in temperature.
 - Two conditions for manufacture of ammonia.

SECTION II (40 Marks)

Attempt any four questions from this Section

Question 2

- a) State one solvent for each of the following: [2]
- Rust
 - Rubber
 - Grease
 - Nail polish
- b) What are bridge elements? Explain with an example. [2]
- c) 'The periodic table contains elements methodically grouped together.' [3]
State the main helpful features of the long form of the periodic table.
- d) Suggest ways of reducing green house gases. [3]

Question 3

- a) State the use of hydrogen – [3]
- In extraction of metals
 - As a fuel
 - In welding and cutting metals
- b) What are groups in a periodic table? What does group number signify? [3]
State one property trend that changes on moving down in a group.

- c) What is the effect of heat on: [4]
- Ammonium dichromate
 - Copper carbonate
- Give equations and observation.

Question 4

- a) Explain the basic function of a catalytic converter in an internal combustion engine. [3]
- b) State the observations when potassium reacts with cold water. [3]
Give a balanced equation for the same.
- c) Give the general group characteristics applied to hydrogen with respect to similarity in properties of hydrogen with – [4]
- Alkali metals
 - Halogens
- With reference to character and bond exhibited.

Question 5

Give balanced equations for the following conversions: [10]

- $\text{NH}_3 \leftarrow \text{H}_2 \rightarrow \text{H}_2\text{S}$
- $\text{CO} + \text{H}_2 \leftarrow \text{H}_2\text{O} \rightarrow \text{CO}_2 + \text{H}_2$
- $\text{ZnO} \leftarrow \text{H}_2\text{O} \rightarrow \text{Al}_2\text{O}_3$
- $\text{KAlO}_2 \leftarrow \text{KOH} \rightarrow \text{K}_2\text{ZnO}_2$
- $\text{MgCl}_2 \leftarrow \text{HCl} \rightarrow \text{FeCl}_2$

Question 6

- a) What are inner transition elements? [2]
- b) What is the impact of acid rain on soil chemistry? [2]
- c) Give balanced equations for the formation of nitric acid in acid rain. [3]
- d) Carry out the following conversions: [3]
- $\text{CO}_2 \rightarrow \text{H}_2\text{CO}_3$
 - $\text{Cl}_2 \rightarrow \text{HClO}$
 - $\text{K}_2\text{O} \rightarrow \text{KOH}$
