

GREENLAWNS HIGH SCHOOL
SEMESTER 2 EXAMINATION
CHEMISTRY
IX – 16/9/22

Maximum Marks: 60

Time allowed: One and a half hours

Answers to this Paper must be written on the paper provided separately.

The time given at the head of this Paper is the time allowed for writing the answers.

Section A is compulsory. Attempt any three questions from Section B.

The intended marks for questions or parts of questions are given in brackets [].

SECTION A

(Attempt all questions.)

Question 1

Choose the correct answers to the questions from the given options. (Do not copy the question, Write the correct answer only.)

[8]

- (i) The valency of all metals is considered as
- (a) Positive
 - (b) Negative
 - (c) Zero
 - (d) trivalent
- (ii) Short hand form of an element is
- (a) compound
 - (b) molecule
 - (c) symbol
 - (d) radical

- (iii) Molecular weight of H_2O .
- (a) 16
 - (b) 18
 - (c) 180
 - (d) 81
- (iv) The correct electrochemical series in ascending order of reactivity is
- (a) $\text{Na} - \text{K} - \text{Ca} - \text{Mg}$
 - (b) $\text{Ca} - \text{K} - \text{Na} - \text{Mg}$
 - (c) $\text{K} - \text{Na} - \text{Ca} - \text{Mg}$
 - (d) $\text{Mg} - \text{Ca} - \text{Na} - \text{K}$
- (v) Heart burn due to acidity is treated using an antacid is an example of
- (a) Substitution reaction
 - (b) Combination reaction
 - (c) Decomposition reaction
 - (d) Neutralisation reaction
- (vi) A saturated solution can be converted to an unsaturated solution by
- (a) Adding the more solvent
 - (b) Cooling the solution
 - (c) Adding the more solute
 - (d) Cooling the solution rapidly
- (vii) The process of conversion of ore into its oxide is known as
- (a) Calcination
 - (b) Combination
 - (c) Reduction
 - (d) Precipitation

(viii) Decomposition reaction which occurs in the presence of light.

- (a) Electrolytic decomposition
- (b) Thermal decomposition
- (c) Photochemical decomposition
- (d) Photosynthesis reaction

Question 2

(i) Select the correct answer from the brackets to complete the following statements: [5]

- (a) Distance between the centre of the nucleus and the outermost shell is _____
[atomic radius/atomic strength]
- (b) Mass of neutron is _____ to the mass of proton. [negligible / equal]
- (c) _____ is the most reactive halogen. [Fluorine / Iodine]
- (d) An increase in _____ of water causes decrease in solubility of gas.
[pressure / temperature]
- (e) _____ metal elements exhibit variable valency. [Alkali earth / Transition]

(ii) Name the following : [5]

- (a) The substance which on exposure to air lose their moisture and change to amorphous state.
- (b) The substance which takes part in chemical reaction.
- (c) The particles having a definite geometric shape, arranged symmetrically.
- (d) A homogenous mixture of a solute in a solvent.
- (e) Number of electrons present in the last shell of the atom are called.

(iii) Draw the atomic orbital structure of the Ammonia and state the type of bond present in it. [3]

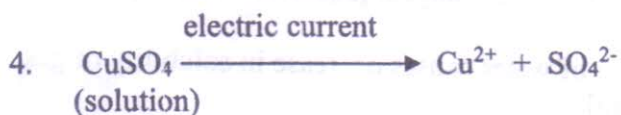
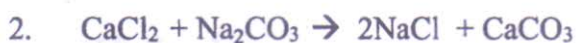
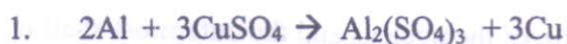
(iv) Calculate the percentage composition of elements present in KClO_3 . [4]

[At. Wts. are K = 39, Cl = 35, O = 16]

(v) A, B, C, D and E are the type of chemical reactions: [5]

- A. Double Decomposition reaction
- B. Displacement reaction
- C. Direct combination reaction
- D. Thermal dissociation reaction
- E. Electrochemical reaction

Match the following equations 1 to 5 to the above types of chemical reactions.



SECTION B

(Attempt any three questions from this Section.)

Question 3

(i) Define: [2]

- (a) Solute
- (b) Substitution reaction

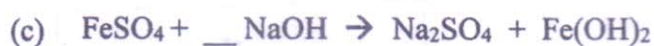
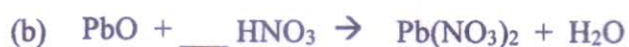
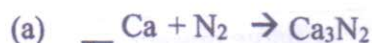
(ii) Name the precipitate formed when: [2]

- (a) Washing soda reacts with Calcium bicarbonate solution.
- (b) When solution of magnesium bicarbonate is boiled.

(iii) Write the chemical formulae of: [3]

- (a) Phosphoric acid
- (b) Zinc hydroxide
- (c) Washing soda

(iv) Copy and balance the following chemical equations: [3]



Question 4

(i) Write the formula of the anion present in the following compounds. [2]

(a) Ammonium carbonate

(b) Sodium nitrate

(ii) State the following: [2]

(a) The drying agent used in the desiccator.

(b) Dehydrating agent for glucose.

(iii) State the observation for the following, when: [3]

(a) CO_2 gas is passed through lime water.

(b) SO_2 gas is passed into dilute solution of KMnO_4 .

(c) $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ is heated strongly.

(iv) State the relevant reason for the following: [3]

a. Isotopes have similar chemical properties.

b. Group 1 [IA] elements are called alkali metals.

c. Dissolved air in water contains a higher percentage of oxygen than ordinary air.

Question 5

(i) Write the specific name of the group for the given elements: [2]

(a) Be, Mg, Ca

(b) F, Cl, Br

(ii) Identify the terms/names for the following: [3]

(a) Insoluble salt formed during double decomposition reaction.

(b) Purest form of water used for qualitative analysis.

(c) Total number of proton and neutron collectively in nucleus of an atom.

(iii) Complete the table given below:

[3]

Name of the atom/ion	Electronic configuration	Charge present
(a) ${}_{20}\text{Ca}$		
(b) Cl^-		1^-

(iv) Write the disadvantage of:

[2]

- a. Hard water b. boiling of water

Question 6

(i) Answer the following questions related to the modern periodic table:

[6]

- What are periods?
- What is modern periodic law?
- What is periodicity in properties?
- What is same for the elements in the same period?
- Pattern shown by non-metallic character across a period.
- Shortest period in the modern periodic table.

(ii) Distinguish between the following:

[2]

- Dilute solution and Concentrated solution [definition]
- Exothermic reaction and Endothermic reaction [using external energy]

(iii) Write 2 characteristics of true solution.

[2]