GREENLAWNS SCHOOL, WORLI

TERMINAL EXAMINATION: 2024-25

CHEMISTRY

Std: IX   Marks: 80

Date: 08/10/2024   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 **10** minutes. This time is to be spent in reading the Question paper.

Section A is compulsory. Attempt **any four** questions from **Section B**.

SECTION A

*(Attempt **all** questions from this Section)*

Question 1

Choose the correct answers to the questions from the given options. [15]

(Do not copy the question, write the correct answers only.)

(i)   Which way is convenient to express the masses of atoms?
(a) Mass of atom in grams
(b) Mass of atom in kilograms
(c) Relative atomic mass
(d) Mass of atom in terms of mass of hydrogen

(ii)   Iodine and phosphorus on close contact react:
(a) Slowly   (c) Does not react
(b) Explosively   (d) None of these

(iii)   Which one of the following is the chemical formula of Epsom salt?
(a) $MgSO_4.10H_2O$ (c) $MgSO_4.8H_2O$
(b) $MgSO_4.9H_2O$ (d) $MgSO_4.7H_2O$

(iv)   The neutron in an atom has:
(a) Only charge   (c) Both charge and mass
(b) No charge   (d) No charge but only mass

(v)   Which element of group 17 is solid in nature?
(a) Chlorine   (c) Bromine
(b) Fluorine   (d) Iodine

(vi)   Which of the following statements is applicable for Co and CO?
(a) Both representations are not same
(b) Both represent compound of carbon monoxide
(c) Both represent atoms of cobalt
(d) Both represent molecules of cobalt

(vii)   The catalyst used in the manufacture of ammonia is:
(a) Pt   (c) Fe
(b) Mo   (d) Mn

(viii) The solvent that dissolves rust is:
(a) Turpentine oil   (c) Oxalic acid
(b) Benzene   (d) Carbon disulphide

(ix)   The number of isotopes of Carbon is:
(a) 1   (c) 3
(b) 2   (d) 4

(x)   Down the group in a Periodic table, the metallic character:
(a) Increases   (c) Increases up to some element & then decreases
(b) Decreases   (d) Decreases up to some element & then increases

(xi)   What is the percentage of oxygen in a water molecule? [H=1, O=16]
(a) 20%   (c) 88.89%
(b) 11.11%   (d) 80%

(xii)   The product formed on thermal dissociation of dinitrogen tetroxide is:
(a) Dinitrogen oxide   (c) Nitrous oxide
(b) Nitrogen dioxide   (d) Nitric oxide

(xiii) The odd one out among $NaOH$, Na_2SO_4, $FeCl_3$, $MgCl_2$ is:
(a) NaOH   (c) $FeCl_3$
(b) Na_2SO_4 (d) $MgCl_2$

(xiv)   Double covalent bond is found in:
(a) Nitrogen molecule   (c) Ammonia
(b) Oxygen molecule   (d) Water

(xv)   The amount of energy released when an atom in the gaseous state accepts an
        electron to form an anion is called:
(a) Atomic radius   (c) Electronegativity
(b) Ionisation potential   (d) Electron affinity

Question 2
(i) Fill in the blanks: **[5]**
(a) Carbonates of _____ and _____ do not produce carbon dioxide on heating.
(b) According to Modern Periodic law, the physical and chemical properties of elements are
    periodic functions of their _____.

(c) When acid reacts with base to form salt and water only, the reaction is known as _____

(d) The common name for decahydrate Sodium sulphate is _____

(e) _____ occurs when the vapour pressure of the hydrated crystals exceeds the vapour pressure of the atmospheric humidity.

(ii) What do you observe when: [5]
(a) Lead nitrate solution is mixed with a solution of sodium chloride.
(b) The solubility of Calcium sulphate is plotted against its respective temperature on a graph paper.
(c) Water is added to anhydrous copper sulphate.
(d) Zinc nitrate crystals are heated (**2 observations**)

(iii) Name the gas evolved in each of the following cases: [5]
(a) Copper carbonate is heated strongly.
(b) Nitrogen combines with hydrogen.
(c) Temporary hard water is boiled.
(d) Action of dilute sulphuric acid on Zinc.
(e) Thermal decomposition of Ammonium dichromate.

(iv) Define or explain the following terms: [5]
(a) Allotropy
(b) Dehydrating agents
(c) Newland's law of octaves
(d) Bridge elements
(e) Precipitation reaction

(v) Classify the following reactions as Decomposition, Synthesis, Neutralization, Precipitation and Displacement: [5]
(a) $ZnO + H_2SO_4 \rightarrow ZnSO_4 + H_2O$
(b) $Ca(OH)_2 \rightarrow CaO + H_2O$
(c) $Fe + CuSO_4 \rightarrow FeSO_4 + Cu$
(d) $SO_3 + H_2O \rightarrow H_2SO_4$
(e) $Zn(NO_3)_2 + Na_2CO_3 \rightarrow 2NaNO_3 + ZnCO_3$

SECTION B
*(Attempt **any four** questions)*

Question 3

(i) Two elements 'R' and 'S' are present in same period and in Group 17 and 18 respectively. Compare the following characteristics: [4]
(a) Number of valence electrons in both the elements.
(b) Their tendency to form compounds.
(c) Their valency.
(d) Their ability to form ions.

(ii) Calculate the percentage of nitrogen in urea [NH_2CONH_2]. **[3]**
   [H=1, C=12, N=14, O=16]

(iii) Distinguish between: **[3]**
   (a) Group and period
   (b) Covalent and ionic bond
   (c) Potassium and platinum (symbol is not a criterion)

Question 4

(i) Give balanced equations to prepare Calcium carbonate using each of the method **[2]**
   given below:
   (a) Precipitation
   (b) Synthesis

(ii) Draw the atomic orbit structure diagram for formation of: **[4]**
   (a) Ammonia
   (b) Calcium oxide

(iii) Write short notes on: **[4]**
   (a) Inner transition elements
   (b) Halogens

Question 5

(i) Mention any two disadvantages of hard water. **[2]**

(ii) Match the atomic number 2, 4, 8, 15 & 19 with each of the following: **[2]**
   (a) A solid non-metal belonging to the third period.
   (b) A metal of valency 1.
   (c) A gaseous element with valency 2.
   (d) An element belonging to Group 2.

(iii) Calculate the percentage of water of crystallization in Washing soda [$Na_2CO_3.10H_2O$]. **[3]**
   [Na=23, C=12, O=16, H=1]

(iv) Give balanced chemical equations for the following: **[3]**
   (a) Ammonia + Copper (II) oxide → Copper + Water + Nitrogen
   (b) Iron (III) oxide + Aluminium → Aluminium oxide + Iron
   (c) Carbon + Nitric acid → Carbon dioxide + Water + Nitrogen dioxide

Question 6

(i) Give balanced equations for the following conversions: **[3]**
   (a) Silver nitrate to silver
   (b) Lead nitrate to lead chloride
   (c) Iron to Iron (III) chloride

(ii) What is meant by 'period number?' What does it signify? **[3]**
   Name the elements of Period 3.

(iii) With respect to 'Isotopes', answer the following questions: **[4]**
   (a) Why do isotopes have similar chemical properties?
   (b) Why do isotopes have different physical properties?
   (c) Atomic mass of chlorine is a fraction and not a whole number. Justify.

Question 7
(i) Draw the atomic orbit structure diagram for formation of: **[4]**
   (a) Magnesium chloride
   (b) Carbon tetrachloride

(ii) Give balanced chemical equations for the following: **[3]**
   (a) Action of concentrated sulphuric acid on glucose.
   (b) Removal of permanent hardness in water.
   (c) A reaction in which a catalyst is used.

(iii) State the contributions made by Mendeleeff towards the periodic table. **[3]**

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