GREENLAWNS SCHOOL, WORLI

TERMINAL EXAMINATION: 2019-20

*CHEMISTRY*

Std: IX Marks: 80

Date: 20/09/2019 Time: 2 hrs

Answer to this paper must be written on the answer booklet provided to you. The first 10 minutes are 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. All questions are compulsory.

Do not waste paper. Leave only one line after each answer.

I A) Name the following: [5]

1. Scientist who discovered atomic nucleus.
2. A solid whose solubility decreases with rise in temperature.
3. The catalyst used for hydrogenation of oil.
4. The colour of the precipitate zinc hydroxide.
5. A group of atoms of elements that behaves like a single unit and shows a valency.

B) Fill in the blanks: [5]

1. Gases combine when kept in contact with one another forming a \_\_\_\_\_\_\_\_\_ mixture.
2. All equations must be balanced in order to comply with the \_\_\_\_\_\_\_\_\_
3. Isotopes have different \_\_\_\_\_\_\_\_\_ properties.
4. Aluminium hydroxide is \_\_\_\_\_\_\_\_\_ in nature.
5. Certain chemicals reactions take place by use of a \_\_\_\_\_\_\_\_\_ which alters the rate of the reaction.

C) Explain the following terms: [5]

1. Compound iii. Reduction v. Charles’ Law
2. Efflorescence iv. Thermal dissociation

D) Give one point of difference between the following: [5]

1. Atomic number and mass number
2. Hydrous and anhydrous substance
3. Precipitation and neutralisation reaction
4. Symbol and formula
5. Pressure and volume

E) Give balanced equations for the following: [5]

1. Action of heat on an orange compound that decomposes to give a green residue.
2. Direct combination of calcium with nitrogen.
3. Conversion of zinc to potassium zincate.
4. Removal of temporary hardness in water by boiling.
5. Conc. Sulphuric acid as a dehydrating agent.

F) Give reasons for the following: [5]

1. Lead cannot be used in the preparation of hydrogen using dilute acids.
2. Common salt turns moist on exposure to air.
3. Gases are highly compressible.
4. Hydrogen although lighter than air, is not collected by the downward displacement of air.
5. The Rutherford’s model of an atom could not provide stability to the nucleus.

G) What do you observe when: [5]

1. Blue copper nitrate crystals are heated.
2. Ferric chloride crystals are exposed to atmosphere for some time.
3. Acidulated water is electrolysed.
4. Hydrogen is passed over heated copper [II] oxide.
5. Lead nitrate crystals are heated in a test tube.

H) Deduce the molecular formula of the following: [3]

1. Sodium dichromate iv. Magnesium bicarbonate
2. Aluminium sulphate v. Potassium nitrate
3. Tetra amine copper [II] sulphate vi. Calcium sulphite

I) Name the reducing agent in the following reactions: [2]

1. Fe2O3+ 3CO → 2Fe + 3CO2
2. ZnO + C → Zn + CO
3. 3CuO + 2NH3→ 3Cu + N2+ 3H2O
4. ZnO + H2→ Zn + H2O

II A) An element ‘M’ has three electrons more than the noble gas with atomic number 10. [2]

 Give the formula of its:

1. Oxide iii. Chromate
2. Phosphate iv. Silicate

B) Give the electron dot diagram of the following: [2]

1. Calcium oxide ii. Water

C) An important step in the manufacture of hydrogen takes place when a mixture of hydrogen and

 carbon monoxide with steam is passed over iron [III] oxide at 4500C.

 (CO + H2) + H2O CO2 + 2H2 + ∆

1. State, briefly, how a suitable mixture of hydrogen and carbon monoxide can be obtained. [1]

Give the equation.

1. How can hydrogen be separated from carbon dioxide and unreacted carbon monoxide? [2]

D) Explain – Atomic mass of chlorine is a fraction and not a whole number. [2]

E) Write a balanced chemical equation for the removal of permanent hardness in water. [1]

III A) State the characteristics of cathode rays. [3]

B) Calculate the relative molecular mass of Potassium dichromate (K=39, Cr=52, O=16) [1]

C) State one solvent for each of the following: [2]

1. Paints iii. Iodine
2. Naphthalene iv. Grease

D) Give the general group characteristics applied to hydrogen with respect to similarity in [2]

 properties with - Alkali metals and Halogens.

E) Give balanced chemical equations for thermal decomposition of: [2]

1. Copper carbonate ii. Silver [I] nitrate

IV A) Give balanced equations for the following conversions: [6]

1. NH3 ← H2 → HCl
2. Ca(OH)2 ← H2O → Fe3O4
3. NaAlO2 ← NaOH → Na2PbO2

B) State what are synthetic detergents? What is the advantage of using synthetic detergents over

 soap? [2]

C) Balance the following chemical equations: [2]

1. S + HNO3 → H2SO4 + H2O + NO2
2. NH3  + O2 → NO + H2O

V A) Find the percentage mass of water in epsom salt MgSO4·7H2O (Mg=24, S=32, O=16) [2]

B) What volume will a gas occupy at 740 mm pressure which at 1480 mm occupies 500 cc? [2]

 (Temperature being constant)

C) At a given temperature the pressure of a gas reduces to 75% of its initial value and the [3]

 volume increases by 40% of its initial value. Find this temperature if the initial temperature was

 -100C.

D) What temperature would be necessary to double the volume of a gas initially at s.t.p. if the [3]

 pressure is decreased by 50%?

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