Date _____ **St. Patrick's Academy** **Name: _____**

M.M : 50 **Test – July, 2020** **Class: X__Roll No.__**

ANSWER KEY

CHEMISTRY

Q.1a) NH_4Cl b) Finally divided iron c) Lead Nitrate $Pb(NO_3)$ d) Subsitution [6]

e) Conc H_2SO_4 f) C_nH_{2n+2}

Q.2 a) False. An aqueous solution of ammonia is basic in nature. [5]

b) True c) True d) True

e) False. Hydrogen chloride gas is heavier than air.

Q.3 a) ethyne b) Carbon c) Ammonium Hydroxide d) Ostwald's process. [4]

Q.4 a) $C + 2H_2SO_4 \longrightarrow CO_2 + 2H_2O + 2SO_2$ [5]

b) $3Cu + 8HNO_3 \longrightarrow 3Cu(NO_3)_2 + 4H_2O + NO$

c) $4NH_3 + 3O_2 \longrightarrow 2N_2 + 6H_2O$

d) $CuO + 2HCl \longrightarrow CuCl_2 + H_2O$

e) $AgNO_3 + HCl \longrightarrow AgCl\downarrow + HNO_3$

SECTION: B

Q.5 a) i)Vandium Pentoxide (V_2O_5) ii)Sulphuric acid iii) $H_2S_2O_7$ (Oleum) [3]

b) Dense white fumes are formed which consist of particles of solid ammonium [1]

$NH_3(g) + HCl(g) \longrightarrow NH_4Cl(solid)$.

c) Saturated- They contain carbon atoms joined by a single covalent bond. [2]

Unsaturated Hydrocarbons- Contain carbon atoms joined by double covalent or triple covalent bonds.

d) C_nH_{2n}, $-\overset{|}{C} = \overset{|}{C}-$ [2]

e) $MnO_2 + 4HCl \xrightarrow{\Delta} MnCl_2 + 2H_2O + Cl_2(g)$ [2]

Q.6a) i) $2KMnO_4 + 16HCl \xrightarrow{\Delta} 2KCl + 2MnCl_2 + 8H_2O + 5\,Cl_2$ [3]

ii) $K_2Cr_2O_7 + 14HCl \xrightarrow{\Delta} 2\,CrCl_3 + 7H_2O + 3Cl_2$

iii) $NH_3 + HNO_3 \longrightarrow NH_4NO_3$

b)i) A higher ratio by weight of the alkali is used. [7]

ii)Because it is cheap and is not deliquescent like other caustic alkalis.

iii) Since it is explosive in nature and may itself decompose forming nitrous oxide and water vapour.

iv) since they react chemically with ammonia.

v) so that the water vapour formed may not trickle back and crack the hot flask.

vi)Since it is lighter than air.

Q.7 a) i) Since it is highly soluble in water. [2]

ii) Because sodium sulphate forms a hard crust, sticks to the glass and is difficult to remove.

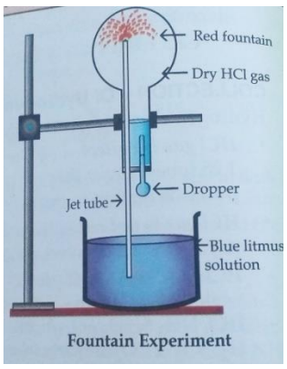
b)i) propanal, —CHO [4]

ii) 1-propanol, —OH

iii) 2butene, —C(|)=C(|)—

iv) 1-propyne —C≡C—

c)i) [4]



Apparatus:

i. Dry round bottom flask filled with dry HCl gas.

ii. Mouth of the flask has a rubber stopper with two holes for-

a) Jet tube, b) Dropper containing water.

iii. Blue litmus solution is placed in the trough below.

Procedure: The dropper containing water is squeezed and the water enters the flask.

Observation: HCl gas present in the flask dissolves in water due to its high solubility, creating a partial vaccum in the flask. The outside pressure being higher pushes the blue litmus solution up the jet tube which emerges out at the end of the tube as a red fountain.

Inference: HCl gas is highly soluble in water & acidic in nature.