SOLUTION -SPECIMEN PAPER CLASS X -24-25

Q1.

(i) C
(ii) D
(iii) B
(iv) C
(v) B
(vi) C
(vii) C
(viii) A
(ix) B
(x) D
(xi) C
(xii) B
(xiii) c
(xiv) A
(xv) B

Q2.(a) (i)Liquid A =conc. sulphuric acid , Solid B = sodium Nitrate , Potassium Nitrate

(ii)because of presence of dissolved nitrogen dioxide gas

(iii) $Cu(s) + 4HNO_3(aq) \rightarrow Cu(NO_3)_2(aq) + 2NO_2(g) + 2H_2O(l)$

(iv) $NaNO_3$ (s) + conc.H_2SO_4 $< 200\ C \rightarrow$ $NaHSO_4$ + HNO_3

(v) nitric acid vapours are highly corrosive and can react with materials like rubber, plastic, and cork

(b) (i)It is easier to break triple bond in comparison to double bond.

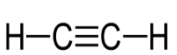
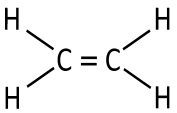
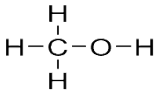
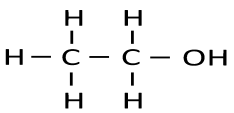
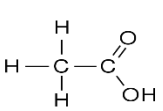
(ii)Copper is a good conductor of electricity because of presence of free electrons, but is a non-electrolyte because of absence of ions

(iii)To release one molecule of oxygen at an anode four electrons are liberated. These four electrons are responsible for releasing two hydrogen molecules at cathode.

(iv)Because PbO_2 react with acid to liberate salt, water and also chlorine gas

(v)Carbon tetra chloride is a non-polar covalent compound. It does not ionise in water, so it does not dissolve in water.

(c) (i) Carbon monoxide (ii) Nitrogen dioxide (iii) Nitrogen gas (iv) Sulphur dioxide (v)Ammonia gas

(d) (i)  (ii)  (iii)  (iv)  (v) 

(e) (1)

$$n = \frac{\text{Molecular formula weight}}{\text{Empirical formula weight}}$$

$$= \frac{2 \times \text{V.D.}}{(2 \times 10 + 5)}$$

(V.D. = Vapour Density)

$$= \frac{2 \times 25}{25} = 2$$

Molecular formula

$= (X_2Y) \times 2$

$= X_4Y_2$

(2)(i) $CuO + H_2SO_4 \rightarrow CuSO_4$ (aq)+ H_2O (ii) $Pb(NO)_3 + 2HCl \rightarrow PbCl_2 \downarrow + 2HNO_3$

(iii)2NaOH (aq) + $CuSO_4$ (aq)→ $Cu(OH)_2$ + Na_2SO_4 (aq)

SECTION B

Q3(a) (i) Dehydrohalogenation (ii) phosphorous penta oxide

(b) (i) $2NH_4OH + Pb(NO_3)_2$ (aq) → $Pb(OH)_2$ (amphoteric)+ $2NH_4NO_3$

(ii) $AlN + 3H_2O \rightarrow Al(OH)_3 + NH_3$

(c) (i) lower (ii) metallic nature /electropositive nature

(iii) Electro Valent compounds are hard because the ions are held by very strong electrostatic force of attraction. Sometimes, due to external stress, similar charges come across each other which strongly repel each other, therefore, the crystals are brittle.

(d) (i) $2Fe + 3\ Cl_2 \rightarrow 2FeCl_3$

(ii) $Zn + H_2SO_4 \rightarrow ZnSO_4$ (aq)+ H_2

(iii) $2NaOH$ (aq) + $H_2SO_4 \rightarrow Na_2SO_4$ (aq)+ H_2O

Q4(a) HCl is heavier than air (ii) Manganese dioxide

(b) Aluminium and copper, it resembles gold as it is bright yellow

(c)(i) He , Ne , Ar

(ii) Ostwald's process ; $4NH_3 + 5O_2 \xrightarrow[800^oC]{Pt} 4NO + 6H_2O + Heat$

(d) (i)dehydration $\underset{H_2C_2O_4}{\begin{pmatrix} COOH \\ | \\ COOH \end{pmatrix}} \xrightarrow{\text{conc. } H_2SO_4} CO + CO_2 + H_2O$

(ii)acidic nature : $Zn + H_2SO_4 \rightarrow ZnSO_4 + H_2$ (iii)oxidising nature: $Cu + 2\ H_2SO_4\ (conc) \rightarrow CuSO_4 + 2H_2O + SO_2$

Q5.(a) (i) Carbon dioxide , nitriogen dioxide , water

(ii) with cold nitric acid – zinc nitrate , water and nitric oxide

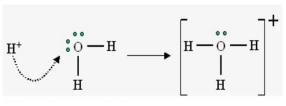
(b) (i) Sulphuric acid is a dibasic salt (it has two replacable hydrogen ions-so form acidic salt and normal salt)

(ii)it is an oxidising agent so it oxidises hydrogen released to form water

(c) (i) $CuCO_3 + 2HCl \rightarrow CuCl_2 + H_2O + CO_2$

(ii) $NaCl + H_2SO_4(conc) \ < 200\ C \rightarrow\ NaHSO_4 + HCl$

(iii) $ZnS + H_2SO_4 \rightarrow ZnSO_4\ H_2S$

(d)(i) $[:\ddot{O}—H]^-$ (ii) 

Q6.(a)(i)due to slightly high electronegativity difference between O and H , the shared pair of electron is attracted towards oxygen.

(ii) it is a non polar covalent compound (so does not ionise in water)

(b) A- Nitric acid , B- Heat

(c) A-3 , B – 2 , C- 5

(d) (i) Diffused sunlight or 600K

(ii)Addition reaction

(iii) (Equation I methane / equation II ethene)

Add bromine water to both

methane	ethene
No change / no observation	Brown colour gets discharged

Q7(a) Oxidising electrode : (O^n) - $4OH^- - 4e^- \rightarrow 2H_2O + O_2$; reducing electrode (R^n): $Cu^{+2} + 2e^- \rightarrow Cu(s)$

(b)Add dilute nitric acid to both(both the salts are insoluble , so nitric acid is added to convert insoluble salt to soluble salt) .Now add NaOH to both

Ca^{+2}	Zn^{+2}
No reaction	Gelatinous white ppt is formed which dissolves in excess of NaOH

(c) (i) reducing nature of ammonia

(ii) acidic nature

(iii) drying agent

(d)(i) pale blue ppt is formed which dissolves in excess of ammonium hydroxide solution to form deep blue (inky) solution

(ii)white chalky ppt is formed which dissolves on heating

(iii)white ppt is formed