1. a))A 1/2mk and G1/2 mk 1mk

The ionic radius is larger 1 mk than the atomic radius implying they gain electrons.

b)JA2 1mk

Metallic(1mk

c) The oxide of E is ionic1mk with a giant ionic structure that requires a lot of energy to break the oxide of G is molecular.(2mks)

d) i. A and D 1mk

A is a non-metal with the smallest ½mk atomic radius hence most electronegative

D is a metal with the smallest atomic radius hence most electropositive. ½mk

ii.E . 1mk Has high melting point ½mk and good ½mk conductor of heat being a metal .

e)i.R gains 2es and hence there is less nuclear 1mk charge /attraction than its atom/gains 2es nuclear attracts 20es against 16 electrons in the atom.

ii .Q(s) + R(s ) QR(s) 1mk

1. a) i.P and Q (2mks)

 ii.L-Baseline (1mk)

 M- Solvent front (1mk)

 iii)Most sticky/less soluble(1mk)

b)i.B(1mk)

 Flame B burns completely because its very hot but A has unburnt region hence it contains unburnt region.91mk)

c) i. Sodium hydroxide solution absorbs carbon (IV) oxide gas(1mk)

 ii.Nitrogen gas. Because it has the lowest boiling points.(2mks)

iii.-Used in oxyacetylene flame.

* Burning fuels for propelling rockets.
* To remove iron impunities during steel making. Any 2 – 1mk
1. a) i. Zn (OH) 2(g)  (1mk)

ii. Zn CL2(aq)  (1mk)

iii. ZnO(s)  (1mk

b) 2Cl- (aq) + Pb2+(aq)  (1mk)

c) White ppt formed (1mk)

 Dissolve in excess (1mk)

d)i. I Z (1mk)

 II Y (1mk)

ii.Amphoteric (1mk)

iii. Zn (OH)2(s) / zinc hydroxide. (1mk)

1. a)A-Ethane C2 H4 CH2 =CH2

B- Ethane C 2 H6 CH3 CH3

F – Carbon (IV) oxide CO2

G- Hydrogen H2 (4mks)

b)i)C 2H (g) + Br 2(l) C 2H 4Br 2or CH2 Br - CH 2Br (1mk)

ii)2C2 H6(g) + 7O 2(s) 4CO2(g) + 6H 2O (g)

 If not balanced = 0mk

 Wrong or missing symbols = 1/2mk

iii)2Na(s) + 2H2 O(l) 2NaOH9aq) + H2(g) (2mks)

 Balanced = 2mks

 Not balanced =0mk.

c)Mass of monomer = 2(12 + 2)= 28

 No.of molecules = 42000 = 15000 molecules (2mks)

 28

d) i..Temperature of 180 0 c (1mk)

 ii.Nickel catalyst (1mk)

1. a) i.- scale(I)

 -Plotting all points correctly (I)

 - Curve (shape)

 ii.0.188- 0.12 = 0.068 mol(I)

 Therefore mass of hydrated copper(II) sulphate

 = 0.68 x 250 = 17g

b)i.Moles of AgNO3 = 0.1 x 24.1 = 2.41 10-3

 1000

 ii.Moles of NaCI = Moles of AgNO3

 = 241 x 10 -3

 iii.Moles of NaCL in 250cm3 = 2.41 x 10-3  x 250

 25

 =2.41 x 10-2

iv.R.F.M Na CI = 23 + 35 .5 = 58.5

 Mass of NaCl in 5cm3 = 2.41 x 10-2 x 58.5

 = 1.41g

v. Mass of water = 5.35 – 1.41

 = 3.94g

vi.3.94 of water contains 1.41g of NaCl

 100 g of water = 1.41 x 100

 3.94

 =35.7

1. a).Contact process=1mk

b).i) Sulphuric(IV) acid.(1mk)

 ii) H2 SO 4(aq( SO 3(g) H 2 S 2 O7(l)

c)i. Platinized asbestos (1mk)

 ii.-It is not highly poisoned(2mks)

 -It is cheap

d) Crystals turn blue to white .Concentrated sulphuric(IV) acid removes water of crystals from hydrated copper(II) sulphate.(2mks)

e) Concentrated sulphuric (VI) acid is less volatile hence displaces more volatile acids from their salts.(1mk)

f) Used in;- accumulators.

 - in manufacture of fertilizers.

 - in etching of metals.

 - in manufacture of detergents.(any 2mks)

1. a) i.Hydrogen chloride gas (HCL (g)  1mk

 ii.Water (H2O (l)  1mk

b)……………………………..

c) i.Green ppt(1mk)

 ii.Insoluble iron (II) hydroxide was formed(1mk)
 Fe2+(aq) + 2OH (aq)  Fe(OH)2(s) 1mk

d) Mass of 1000cm3 of solution = 1000 x 1.18 1/2mk

 = 1180g 1/2mk

Mass of HCl = 35 x 1180 ½ mk

 100

 = 413g ½mk

Molarity = 413 ½ mk

 36.5

 = 11.3151 M ½mk