iii) Write the formula of the white precipitate obtained with aqueous sodium hydroxide. (1)

iv) Write the chemical equation of the reaction when sodium hydroxide is added to the solution of R in nitric acid. (1)

v) Name powder 'P'. (1/2)

vi) Write the equation showing effect of heat on 'P'. (1/2)

c) Sulphur burns in oxygen to give sulphur dioxide. If 16 g of sulphur burns in 'x' cc of oxygen. Calculate the amount of potassium nitrate required to produce 'x' cc of oxygen. (2)
(S = 32, O = 16, K = 39, N = 14)

Question 3

a)

i) Name 2 chemicals required for the laboratory preparation of ammonia gas. (1)

ii) Write a chemical equation when the chemicals named in (i) react. (1)

iii) Name the drying agent used for drying ammonia. (1/2)

iv) Why is phosphorous pentoxide not used as a drying agent? Give an equation to support your answer. (1 ½)

b) Give the common name and chemical formula of 2 ores of aluminium. (2)

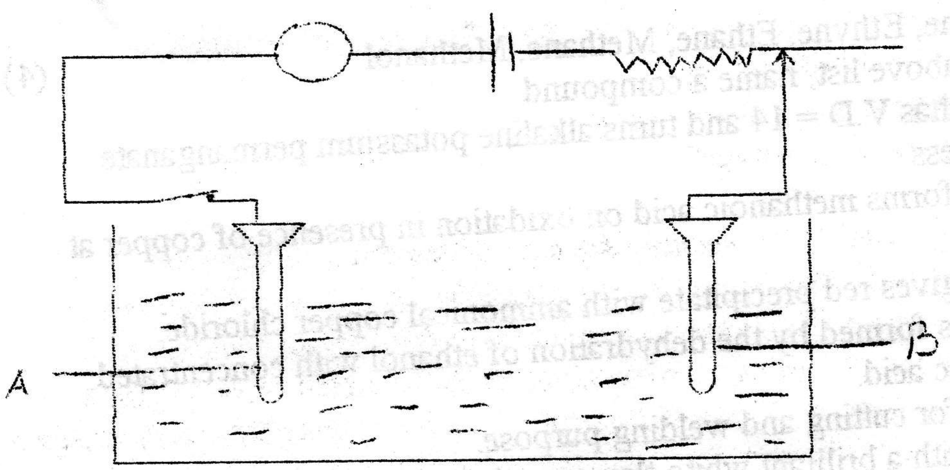
c) What is an alloy? Give its importance. (2)

d) Match the alloys given in List A to their corresponding composition given in List B. (2)

List A	List B
Stainless steel	Cu, Zn, Sn
Bronze	Al, Cu, Mg, Mn
Duralumin	Fe, C, Ni, Cr
Brass	Cu, Zn
	Fe, W, C

Question 4

a) Study the diagram drawn below and answer the question that follow:



i) Give the names of electrodes A and B. (1)

ii) Which electrode is the oxidizing electrode? (1)

b) Choose from the following list only
$ZnCl_2$, CO_2, $CuCl_2$, $CaOCl_2$, $HCl_{(g)}$, Au, N_2, H_2, O_2, NH_3, dil HCl Acid, Pt.

i) 2 gases which combine to give a basis gas. (1)
ii) 2 neutral gases which combine to give another neutral gas. (1)
iii) 2 gases which combine to give a solid. (1)
iv) 2 neutral gases which combine to give a neutral liquid. (1)

c) Give the structural formula of the following organic compounds. (2)
i) Acetylene ozonide
ii) Ethylene glycol.

Question 5

a) Give equation to show how you would check whether a given salt solution contains a nitrate radicle. Also name the test that you would carry out. (2)

b) Answer the following questions with reference to one mole of chlorine gas.
i) What is the volume occupied by this gas at STP? (1/2)
ii) What will happen to the volume of the gas, if the pressure is doubled. (1/2)
iii) What volume will it occupy at 273° C? (1)
iv) If the R.M.M of chlorine is 35.5, what will be the mass of 1 mole of the gas? (1)

c) Give the importance of the following:- (3)
i) Cup and cone arrangement in extraction of iron.
ii) Cryolite in extraction of aluminium.
iii) Froth floatation in extraction of zinc.

d) Draw an electron dot diagram to show the formation of hydronium ion.(2)

Question 6

a) Give a chemical test to show how you would differentiate between sulphur dioxide and hydrogen sulphide gas. Give equations to justify your answer. (2)

b) Identify the following as oxidation or reduction reactions. (2)
i) $Fe^{+2} \rightarrow Fe^{+3} + 1e$
ii) $2\,Cl \rightarrow Cl_2 + 2e$
iii) $X + 2e \rightarrow X^{-2}$
iv) $Zn^{+3} + 1e \rightarrow Zn^{+2}$

c) List: Ethene, Ethyne, Ethane, Methane, Methanol (4)
From the above list, name a compound
i) Which has V.D = 14 and turns alkaline potassium permanganate colourless.
ii) Which forms methanoic acid on oxidation in presence of copper at 200° C.
iii) Which gives red precipitate with ammonical copper chloride.
iv) Which is formed by the dehydration of ethanol with concentrated sulphuric acid.
v) Is used for cutting and welding purpose.
vi) Burns with a brilliant white flame producing a lot of soot

Question 7

a) In the extraction of iron, a mixture of limestone, coke and iron ore is added to the blast furnace. With reference to this –

i) State the purpose of adding limestone to the furnace. (4)

ii) Give the equation for the reduction of the ore.

iii) Name the substance which is collected along with cast iron at the bottom of the furnace.

iv) Write the chemical equation for the formation of the substance named in (iii) above.

b) A compound has a percentage composition H = 1.59%, N = 22.22%,, O = 76.19%, Find the empirical formula of the compound. (2)
(H = 1, N = 14, O = 16)

c) Arrange the following elements as per guidelines given in the bracket.(4)

i) B, C, Li, O (in decreasing order of atomic size)

ii) C, Li, N, F (in increasing order of electro negativity)

iii) (Rb, Na, K, Li) (in increasing order of ionization potential)

iv) F, Cl, I, Br (in increasing order of electron affinity)