YESMARK TUITION SERVICES

FORM TWO CHEMISTRY

2016 CAT 004

1. Below are chemical formulae of some compounds. Give the IUPAC names of the compounds.

	Chemical formula	Name	
i)	CUO		(1 mk)
ii)	$Fe(OH)_3$		(1 mk)
iii)	SO_3		(1 mk)
iv)	MgF_2		(1 mk)

2. Write the formula of anions and cations in each of the following compounds.

Compound	Cation	Anion
$Mg(HCO_3)_2$ $BaCl_2$ MnO_2 $(NH_4)CO_3$		

3. i) What is relative atomic mass of an elements? (2mks)

ii) An element P has two isotopes with relative abundance of 65% and 35%. If the mass number of the two isotopes is X and 31 respectively, fin the mass number represented by X given that the relative atomic mass of element P is 30. (3mks)

4. . Write balance chemical equations for the following reactions.

i) Zinc and nitric acid (1mk)

ii) Iron (III) hydroxide and hydrochloric acid. (1mk)

iii) Copper (II) Oxide and nitric acid (1mk)

iv) Calcium carbonate and hydrochloric acid (1mk)

v) Potassium and water (1mk)

vi) Magnesium and iodine (1mk)

vii) Burning lithium in air (1mk)

viii) Phosphorous (V) Oxide and water (1mk)

ix) Sodium Oxide and water (1mk)

x) Sulphur (IV) Oxide and water (1mk)

5. Consider the following substances; sodium chloride, sodium fluoride, phosphorous (III) Chloride and graphite

i. Arrange the elements in the order of increasing melting point. (2mks)

ii. Which substance is likely to dissolve in non-polar solvent most reactively? (1mk)

iii. Which substance can conduct electricity in solid form? (1mk)

6. i) Explain why the melting points of aluminium is higher than that of sodium (2mks)

ii) Explain why the melting point of sodium is higher than that of Chloride. (2mks)

7. A student wanted to prepare Sodium Chloride. She added Sodium Carbonate to hydrochloric acid. She was finally unsuccessful. Explain why she was unable to obtain pure Sodium Chloride. (2mks)

8. The table below shows some physical properties of substances E to I. Study them and answer the questions that follow:

Substance	Mpts (°C)	Bpts (°C)	Electrical Conductivity	
			Solid	Liquid
E	1131	1274	Poor	Good
F	-75	-10	Poor	Poor
G	3700	4200	Poor	Poor
H	660	2057	Good	Good
I	-7	59	poor	Poor

a) Which two substances are likely to have simple molecular structures. (1mk)

b) Name the particles which conduct electricity liquid

E_____ (1mk)

H _____ (1mk)

c) Which substance is likely to be

i) A metal _____ (1mk)

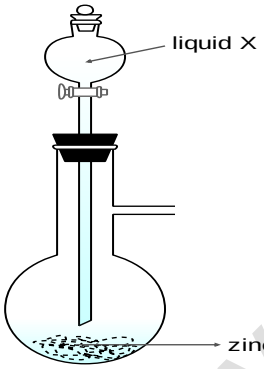
ii) Sodium Oxide _____ (1mk)

iii) A gas at room temperature _____ (1mk)

9. i) Explain why phosphorous (III) Oxide from fumes when it is exposed to the air (2mks)

ii) Write an equation to explain what happens. (1mk)

10. Below is part of apparatus used to prepare and collect dry hydrogen



a) Name liquid X (1mk)

b) Complete the diagram to show how dry hydrogen can be prepared and collected. (4mks)

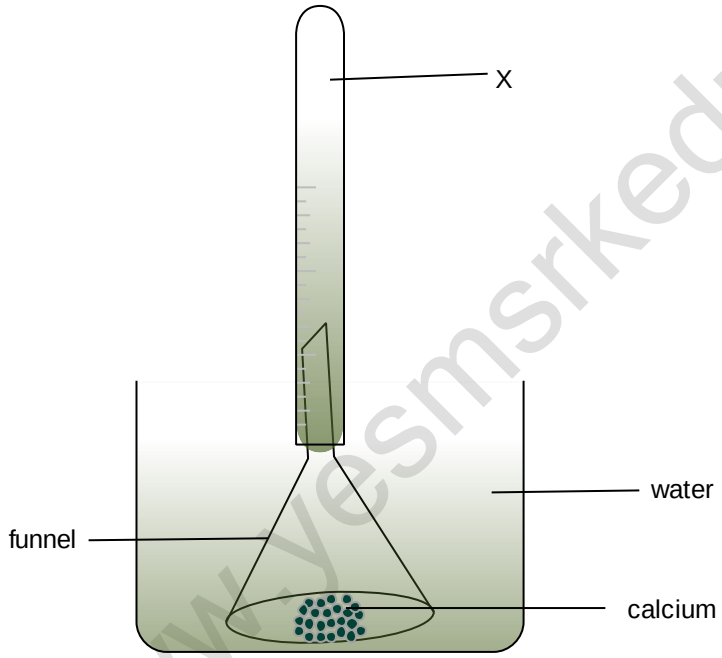
c) State and explain the observations made when hydrogen is passed over hot copper (II) Oxide. (2mks)

d) Write an equation for the reaction which takes place when hydrogen is burning in oxygen. (1mk)

e) Draw 'dot' and cross diagram to show how hydrogen bonds to sulphur in hydrogen sulphide (2mks)

f) Name the compound formed in (e) above (1mk)

11. The diagram below shows calcium metal in water



a) Name gas x (1mk)

b) White precipitate forms in the water after some time. Explain (2mks)

c) Write an equation for the reaction in the water. (1mk)

d) When the mixture in the beaker is filtered and carbon (IV) Oxide is bubbled into the filtrate, white precipitate is formed.

i) What is the name of the white precipitate (1mk)

ii) Write an equation for the reaction. (1mk)

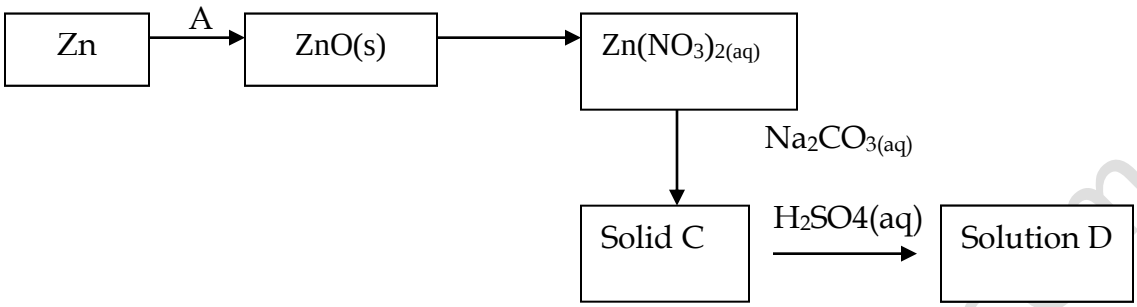
12. Starting with lead (II) carbonate describe how one can prepare dry crystals if lead (II) nitrate. (3mks)

13. If you are provided with solid sodium carbonate, Zinc Oxide, Sulphuric acid and water, describe how you can prepare Zinc Carbonate. (3mks)

14. . (i) What is a double salt? (2mks)

ii) Give an example of a double salt. (1mk)

15. Study the scheme below and answer the questions that follow



a) Name

A _____ (1mk)

B _____ (1mk)

C _____ (1mk)

b) What is the observation made when lead (II) nitrate solution is added to solution D. Explain (2mks)