

## CHEMISTRY FORM THREE ENTRANCE ZANZIBAR 2015

Solutions from: [Maktaba by TETEA](#)

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1.

i	ii	lii	iv	v	vi	vii	viii	ix	x
D	C	B	C	C	B	B	A	D	B

2.

i	ii	lii	iv	v	vi	vii	viii	ix	x
F	D	A	L	I	B	H	C	J	E

3. (i) groups, periods

(ii) Mercury

(iii) Saturated, temperature

(iv) Catalyst, rate

(v) lightest

4. (a) Given,  $\text{KClO}_3$

$$+1 + \text{Cl} + (2 \times 3) = 0$$

Oxidation state of chlorine is  $-5$

(b) –divide each by its molar mass

$$\text{Sodium, } 39.3/23 = 1.71 \text{ chlorine } 60.7/35 = 1.73$$

–divide by smallest value

$$\text{Sodium } 1.71/1.71 = 1, \text{ chlorine } 1.73/1.71 = 1$$

(i) Empirical formula =  $\text{NaCl}$

(ii) let molecular formula be  $(\text{NaCl})_x = 58.5$

$$23x + 35x = 58.5$$

$$x = 1$$

Molecular formula = NaCl

(iii) Sodium chloride

(iv) normal salt

(v) Electrovalent bond

(vi)  $\text{Na}^+ + \text{Cl}^- \longrightarrow \text{NaCl}$

5. (a)(i) Ammonium sulphate

(ii) sodium oxide

(iii) zinc chloride

(iv) Aluminium oxide

(v) potassium nitride

(b)(i)  $\text{Cu}(\text{OH})_2$

(ii)  $\text{Ca}(\text{NO}_3)_2$

(iii)  $\text{Ca}(\text{HSO}_4)$

(iv)  $\text{NaHCO}_3$

(v)  $\text{CS}_2$

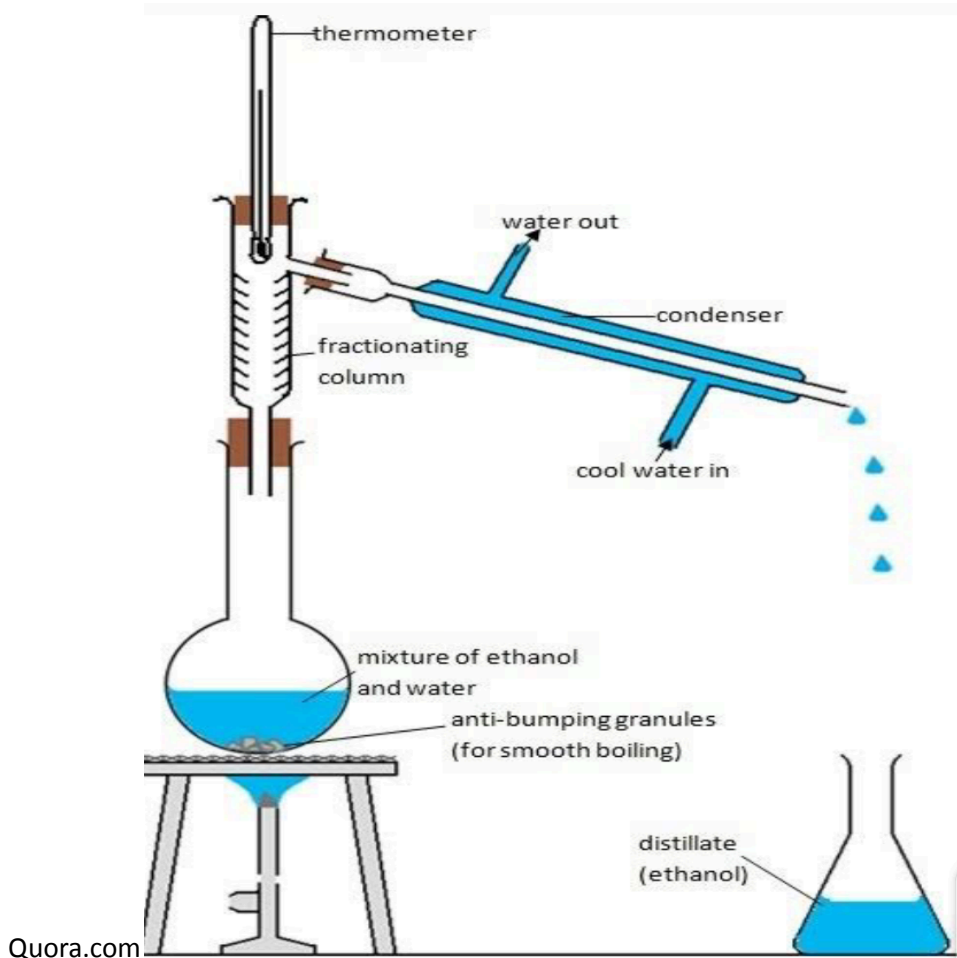
6. (a)(i) Chromatograph

(ii) sublimation

(iii) layer separation

(iv) magnetic

(b)



(c)(i) Layer separation

(ii) two liquids form layer

7. (a)(i) boiling

(ii) chlorination

(b) Water treatment helps to kill microorganisms that can cause disease to people.

(c)-water helps to cool engines

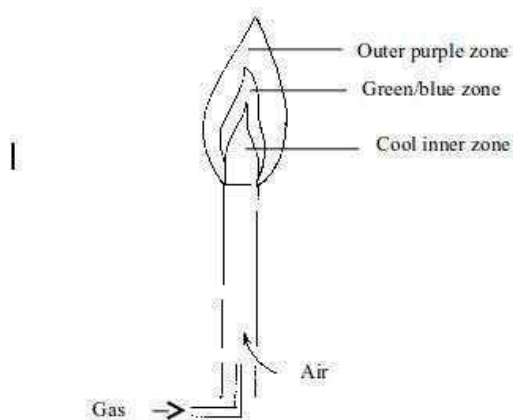
-water helps to growth of plants

-water helps on drinking to prevent thirst

-water used to clean our bodies

8. (a)(i), (iii), (vi), (vii)

(b)



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9. (a)(i) presence of moisture and oxygen air

(ii)-painting

-tin-plating

-galvanizing

(iii) mass must decrease because it is corroded

(iv) rusting is chemical change.

(v) because new product which is rust is formed.

(vi) no changes will occur to iron

(vii)-Anhydrous calcium chloride absorbs moisture

-cotton wool has moisture.

(b)(i) Hydrogen gas

(ii) pop-sound when ignited

(iii) Thistle funnel, gas jar, trough

(iv)-used as fuel in rockets

-used to make margarine

(v) hydrogen gas + zinc sulphate

(vi)  $\text{Zn} + \text{H}_2\text{SO}_4 \longrightarrow \text{H}_2 + \text{ZnSO}_4$

10.

ATOM	MASS NUMBER	NO. OF ELECTRONS	NO. OF NEUTRONS	NO. OF PROTONS
Li	6	3	3	3
Na	23	11	12	11
Mg	24	12	12	
O	16	8	8	8
K	39	19	20	19
F	19	9	10	9

(b)

metals	Non-metals
Li	O
Na	F
Mg	
K	

(C)(i)Li 2:1

(ii)F, 2:7

(d)(i)Oxygen protons on nucleus = 8

-neutrons = 8

(ii)covalent bond

(iii)electrovalent bond.

11. (a)In agriculture, chemistry has being helpful in manufacturing of chemicals such as pestctides,insectcides and also in the production of synthetic fertilizers like NPK.

-In medicine, chemistry has become useful because it helps the production of medicines for curing different diseases in human bodies.

-In food and beverage, chemistry has become useful as it has helped to make chemicals used to protect the foods from being spoiled for long time.

-Chemistry has become useful in transport and communication as it has enabled the manufacture of fuels used to drive engines.