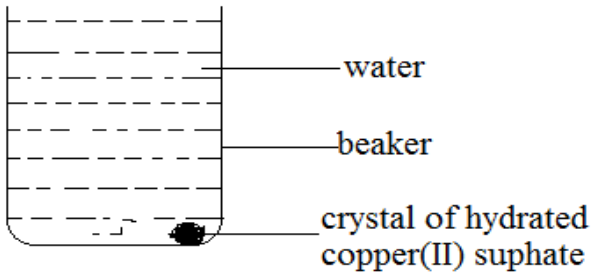
CHEMISTRY ASSESSMENT TEST **Duration: 90minutes**

1. A crystal of hydrated copper(II) sulphate***(which is blue in colour)*** was placed in a glass beaker full of water as shown in the figure below.



(a) (i) state what would be observed after five minutes. (01marks)

……
……

(ii) Explain the observation above. (02marks)

……
……
……

(b) State;

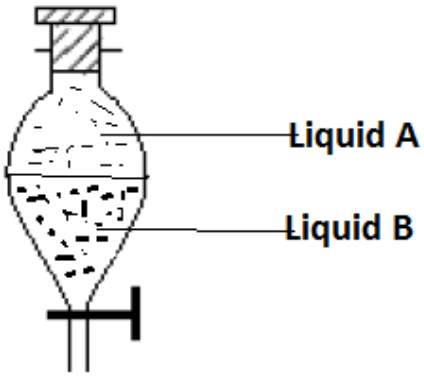
(i) The name of the process that occurred. (01 mark)

……..

(ii) Any two factors that affect the process (02 marks)

……
……

2. Figure 1 shows a setup of the apparatus that was used for separating a mixture of water and kerosene.



(a) Identify liquids A and B.

(i) A…….. (01 mark)

(ii) B……. (01 mark)

(b) (i) State why liquid A forms the upper layer. (02marks)

……

……..……

(c) State why the liquids form a liquid junction as shown in figure 1. (01mark)

……

3. Name one process by which the components of the following mixtures can be separated: (06marks)

Mixture	Process
pigments of a green leaf	
water and ethanol	
iodine and potassium chloride	
copper(II) sulphate and sand.	
Sulphur powder with iron filings	
Water and common salt	

4. (a) (i). What is alloy? (1mark)

……

(ii). Give an example of an alloy. (1mark)

……

(iii). State the composition of the alloy you named in (a)(i). (1mark)

……

……

(b) State two uses of the alloy in (a)(ii). (2marks)

……

……

(c). State three differences between a mixture and a compound. (3marks)

Mixture	Compound

5. The table below shows the number of protons and electrons for atoms W,X, Y and Z. Use it to answer questions that follow

Atom	Protons	Electrons
W	17	17
X	13	10
Y	17	18
Z	20	20

(a) Define the term

(i) isotopes (01 mark))

……

……

(ii) Isotopy (01 mark).

……

……

(b) (i) Identify atoms which are isotopes (1 mark)

……

iii). Give a reason for your answer in **b(i)** above (1 mark)

……

……

(c) Write electronic configuration of (2 marks)

i) Y.....

ii) Z.....

6. a) Define the following terms; (02marks)

(i) atom

……

……

(ii) molecule

……

……

b) i) Name the three fundamentals of an atom. (03 marks)

……

ii) complete the table below which gives a summary of the properties of the fundamental particles of an atom. (08marks)

Particle	Symbol	Charge	Mass (a.m.u)
	E		Negligible(1/1840)
	N		
		Positive (+)	

(c) which of the particle(s) is/are located in

(i) the nucleus?..... (02 marks)

(ii) the energy levels /shells ……. (01 mark)

(d) the mass of an atom is generally due to its nucleus. Explain (02marks)

……

……

(e) an atom is generally described as an "electrically neutral" species . give the main reason for this observation. (02 marks)

……

……

7. a) Explain what is meant by the terms. (02 marks)

i) Atomic number.

……

ii) Mass number.

……

……

b) complete the table below (15 marks)

Element/symbol	Mass number	Atomic number	Number of protons	Number of neutrons	Number of electrons
Sodium, Na	23		11		
Calcium, Ca		20		20	
Hydrogen, H	1		1		
Chlorine, Cl	35				17
Y	227		89		

c) An atom of an element is represented as $^{195}_{78}X$

i) State the; (04 marks)

Atomic number of X…… Number of protons in X ……

Number of electrons in X…… Mass number of X……..

ii)Determine the number of neutrons of X (01 mark)

……

d) Naturally occurring neon is a mixture of three isotopes K,L, M of mass number 20, 21 and 22 respectively. The atomic number of each isotope is 10.

(i) For each of the isotopes , determine the number of; (09marks)

Atoms	Electrons	Protons	Neutrons
K			
L			
M			

8. The number of electronics, protons and neutrons in the atoms of elements A, B, C, D and E are shown in the table below;

Atoms	Electrons	Protons	Neutrons
A	8	8	8
B	13	13	14
C	16	16	16
D	Y	11	11
E	8	Z	10

a) Determine the values of (02 marks)

i) Y. …… (½mark) ii) Z. …….(½mark)

b) State the mass number of atom C. (½mark)

……

c) Indicate which of the atoms

i) are isotopes…… (½mark)

ii) belong to the same group in the Periodic table. ……..(1½mark)

d) Write the electronic configuration of

(i) atom A……(½mark) (iii) atom C…… (½mark)

(ii) atom B…… (½mark) (iv) atom D……..……(½ mark)

(d). Draw the electronic structure of; (04 marks)

Atom A	Atom C
Atom B	Atom D

9. The atomic numbers of elements W, X, Y and Z are 6, 18, 16 and 19 respectively. Complete the table below. (12 marks)

Element	Period	Group	Valency
W			
X			
Y			
Z			

END

"You will experience a painful sharpening from time to time, but this is required if you are to become a better pencil".