CHEMISTRY CAT 6TH NOVEMBER

Rules
1.start with capital letter when writing answers
2.dont space when writing chemical equations
3.in chemical equations, use (/) as the arrow between reactants and products
4. On equations, make sure you bracket the states I. E (aq)
5.dont space after your answers, and don't use a full stop after your answers.
Attempt all questions.
MR OUMA 0721342959

* Required

NAME *

Your answer

SCHOOL *

Your answer

GENDER *

M

- F

CLASS *

- 2
- 3
- 4

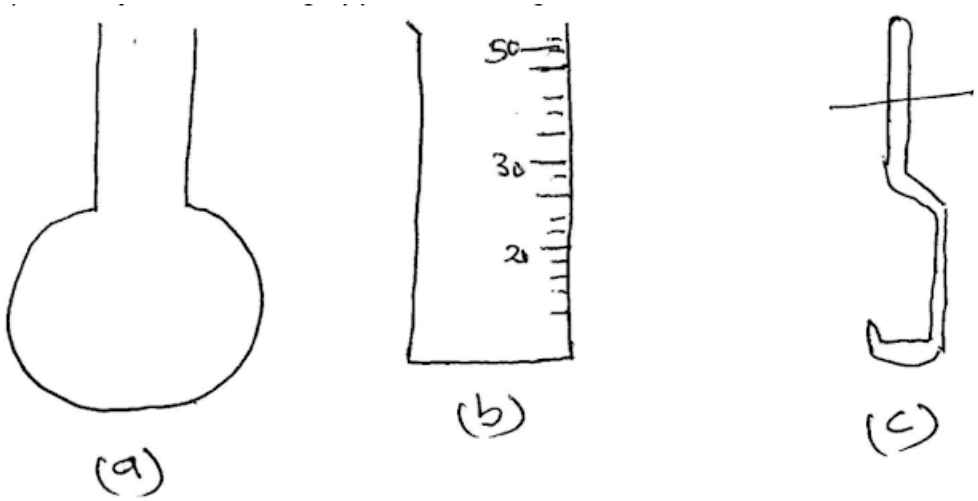
Define the following: Element (1mk) * 2 points

- Two or more substances which are chemically combined
- the smallest particles of an element which can chemically react
- Is a pure substance that can not be splitted further by chemical means
- a pure substance that can exist freely and separately

Ion (1mk) 1 point
*

- is a charged cation
- is a charged anion
- is a charged atom which has reacted.

i) Identify the following apparatus and give a use for each (3mks) (use (/) to separate the name of the apparatus and the use. Do not space) * 3 points



a) .....Use.....

Your answer

State four sources of heat in a laboratory? * 4 points

Your answer

Which materials is most laboratory apparatus made of? * 1 point

- Glass
- Plastic
- Metals

ii) Name another apparatus that can be used in place of (b) (1mk) 1 point

Your answer

Give four reasons why most apparatus are made of glass (4mks) 4 points

*

- [ ] They can be easily cleaned
- [ ] the glasses are catalyst to the reactions
- [ ] they cannot be oxidised
- [ ] the glasses do not react with most of the chemicals
- [ ] they are transparent and therefore visible
- [ ] glasses are cheaper

1 point

Define the following terms

Isotope (1mk)

*

- ◯ These are atoms of the same elements in different forms but with same physical forms
- ◯ These are similar forms of an element with different physical state
- ◯ this are atoms of an element with same atomic number but different mass number
- ◯ these are atoms of same element with same neutron numbers but different protons number

number

1 point

Ionization energy (1mk)

- The maximum amount of energy required by an atom to lose or to gain it's valency number
- the minimum amount of energy that is required to remove an electron in the outermost energy level of an atom in gaseous state
- the maximum amount of energy that is required to remove an electron in the outermost energy level of an atom in gaseous state

0 points

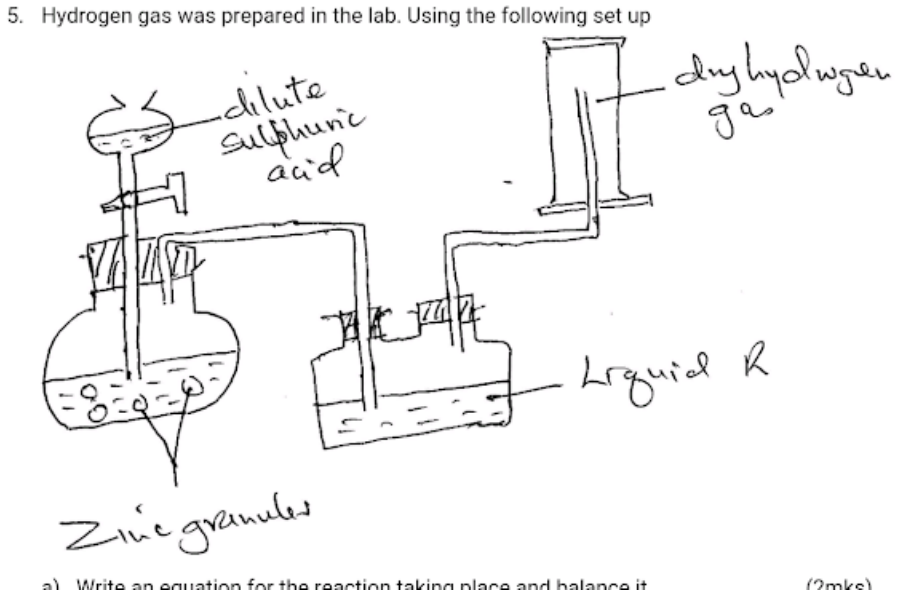
Electron affinity is the ability of an atom to gain or to lose electron from it's outermost energy level. true or false (1mk)
*

- true
- False

Hydrogen gas was prepared in the lab. Using the following set up 2 points

Write an equation for the reaction taking place and balance it (2mks)

*



Your answer

Name the method used to collect the gas and give a property of hydrogen that enables it to be collected through the method respectively. (2mks) 2 points

*

- over water method, soluble in water
- over water method , insoluble in water
- upward delivery, less denser than water
- downward delivery, denser than water

Name liquid R and state its function in the set up (2mks) 2 points
*

- Sulphuric (VI) acid
- Conc. Sulphuric (VI) acid
- Anhydrous calcium chloride

Explain why it is not advisable to use sodium metal in place of zinc metal (2mks) 2 points
*

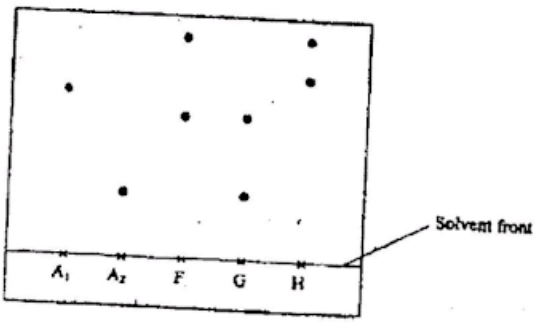
- Reaction would be explosive/dangerous because sodium is very reactive
- Reaction wouldn't be possible
- Sodium is poisonous

State two uses of hydrogen gas (2mks) 2 points
*

- hot air balloon, oxyacetylene flame
- hydrogenation, purification of water
- in harber process, manufacture of mangarine

Samples of urine from three participants F, G and H at an international sports meeting were spotted onto a chromatography paper alongside two from illegal drugs A1 and A2. A chromatogram was run using methanol. The figure below shows the chromatogram. 1 point

Identify the athlete who had used an illegal drug (1mk)
*



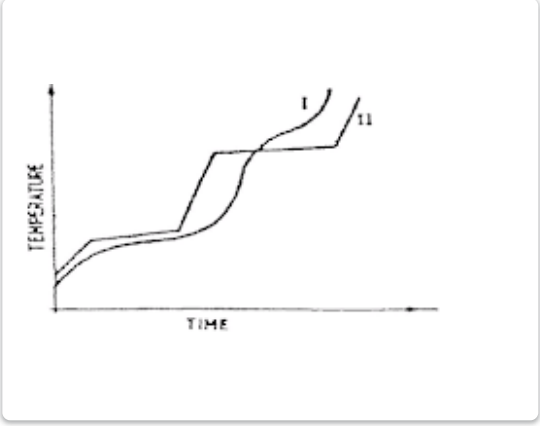
- G
- H
- F

Which drug is more soluble in methanol? (1mk) 1 point
*

Your answer

The curve below represents the variation of temperature with time when pure and impure samples of a solid were heated separately. 2 points

Which curve shows the variation in temperature for the pure solid? Explain. (2mks)



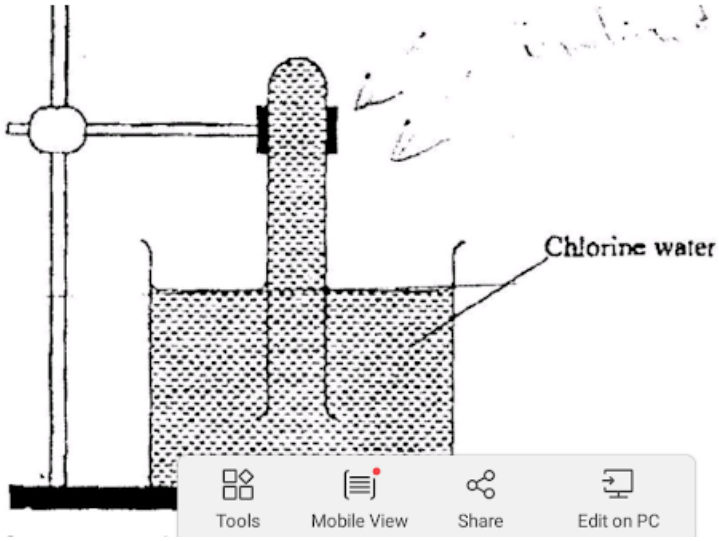
I

Option 1

II

In an experiment, a test-tube full of chlorine water was inverted in chlorine water as shown in the diagram below and the set up left in sunlight for one day. 1 point

After one day, a gas was found to have collected in the test-tube
Identify the gas (1mks)



- chlorine gas
- oxygen gas
- hydrogen gas
- nitrogen gas

2 points

How can the above gas be tested? (2mks)
*

- it rekindles a glowing splint

- hydrogen with air burns explosively
- chlorine and ammonia gas forms a white fumes of ammonium chloride
- Nitrogen gas, insoluble in warm watee

The table below shows some properties and electronic arrangements of common ions of elements represented by letters P to X. Study the information in the table and answer the questions that follow

2 points

Give the atomic numbers of the elements P and Q (2mks)

*

uestions that follow

Element	Ion	Electron arrangement	Atomic radius	Ionic radius
P	P^{2+}	2,8,8	0.197	0.099
Q	Q^{-}	2,8	0.072	0.136
R	R^{+}	2,8,8	0.231	0.133
S	S^{3+}	2,8	0.143	0.050
T	T^{2+}	2,8,8	0.133	0.074
U	U^{2+}	2,8	0.160	0.065
V	V^{+}	2,8	0.186	0.095
W	W^{+}	2	0.152	0.060
X	X^{-}	2,8,8	0.099	0.181

Your answer

Select the most reactive metallic element (1mk)

1 point

*

Your answer

Select 3 elements that belong to the same group of periodic table (2mks) 3 points

*

- [ ] P
- [ ] Q
- [ ] S
- [ ] T
- [ ] U
- [ ] V

Select 3 elements that would react with cold water to evolve hydrogen gas (1mk) 3 points

*

- [ ] P
- [ ] Q
- [ ] R
- [ ] U
- [ ] V

Why is the ionic radius of element X larger than its atomic radius? (1mk) 2 points

*

- ( ) Form ions by gaining electrons/ Since it is a non-metal/resulting in electron-electron repulsion

- It has more number of energy levels than the atom
- It has more number of valence electrons

Write an equation of the reaction between element S and Oxygen (2mks) 2 points

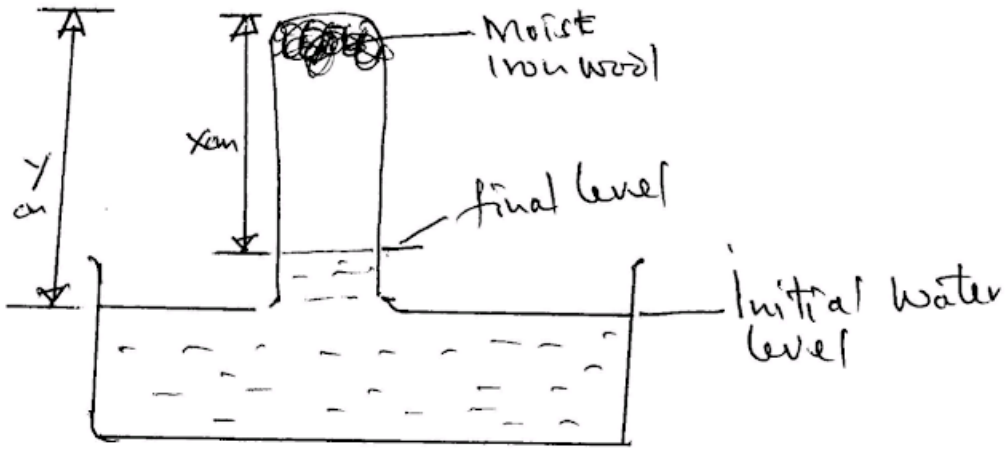
*

Your answer

Moist iron wool was inverted over water. The set up was left to stand for 2 days 2 points

Explain whether rusting is a physical or chemical reaction (2mks)

*



- chemical
- physical

State two similarities between rusting and combustion (2mks) 2 points
*

- New substance formed
- Both are reversible
- No new substance is formed

2 points

Observe the equation below
Fe2O3(s) + CO(g) Fe(s) + CO2(g)
Balance the equation (1mk)
*

Your answer

Select the following from the above equation 1 point
Oxidizing agent (1mk)
*

Your answer

2 points

Reducing agent (1mk)
*

Your answer

Carbon (IV) sublimes at -78oC. It is called dry ice 1 point

Why is it called dry ice? (1mk)

*

- it because it can sublime
- it is because it sublimes leaving no wetness behind
- it is because it is used in ice venders machines.
- it is because it is changing from solid to gas directly without passing into liquid

It is used for keeping ice cream cold. Why is it preferred to ordinary ice? (2mks)

*

- it is cheaper
- it sublimes leaving no wetness behind
- it is a subliming substance
- it is not a better coolant

Name two other substances that behave as dry ice (2mks) 2 points

*

- zinc

- [ ] aluminum (IV) chloride
- [ ] ammonium (III) chloride
- [ ] benzoic acid

1 point

Give an industrial application of sublimation (1mk)
*

Your answer

16An element A, has 30 protons and 35 neutrons. What is The mass number of element A? * 2 points

- ◯ 55
- ◯ 65
- ◯ 60
- ◯ 70

The charge on the most stable ion of element A? 2 points
*

- ◯ 4-
- ◯ 4+
- ◯ 2
- ◯ 3

An element B consists of three isotopes of mass, 28, 29 and 30 and percentage abundances 4 points

of 92.2, 4.7 and 3.1 respectively. Work out relative atomic mass(4mks) DONT WRITE THE UNITS *

Your answer

Elements X and Y have atomic numbers 11 and 17 respectively. Which one of the elements is a metal? (2mks) * 2 points

- X
- Y
- Other:

The table below shows the atomic numbers of four elements W,X,Y and Z
Which two elements belong to the same group? (2mks) *
2 points

table below shows the atomic numbers of four elements W,X,Y a

Element	W	X	Y	Z
Atomic number	20	17	19	9

ch two elements belong to the same group?
ıks)

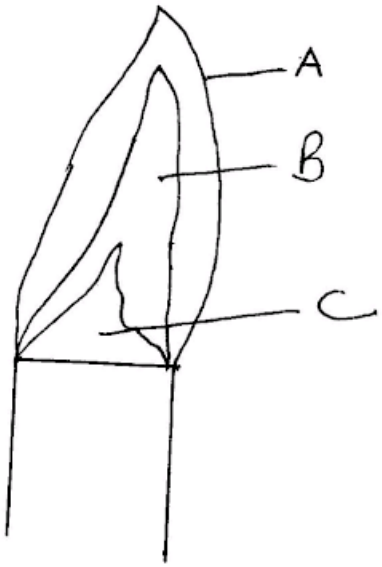
- [ ] W
- [ ] X
- [ ] Y

- [ ] Z

Two elements M and N have atomic numbers 17 and 20 respectively. Write the formula of the compound formed when M and N react. (1mk) * 1 point

- ◯ NM2
- ◯ N1M2
- ◯ N2M
- ◯ N2M1

The following diagram represents a non-luminous flame of the Bunsen burnerName the parts of the flame labeled A, B and C respectively, DO NOT INDICATE THE SYMBOLS IN YOUR ANSWER, SPERATE THE ANSWERS WITH COMAS, AND START WITH CAPITAL LETTER (3mks) * 3 points



Your answer

Which of the parts in (a) above is the hottest? (1mk) 1 point
*

Your answer

2 points

i) Name the other type of flame produced by a Bunsen burner (1mk)
*

Your answer

3 points

ii) Under what conditions does the Bunsen burner produce the flame in d(i)? (1mk)
*

Your answer

Define the following terms as used in medicineDrug (1mk) * 2 points

- is a medicinal substance
- anything that alters your mind
- any substance that changes your normal body function
- any substance that alters your body function

Prescription is the written detailed information on the correct amount and how to use a drug true or false? (1mk) 1 point
*

- true
- false

Dosage is the amount of drug required to treat a particular illness, (1mk) 1 point
*

- false
- true

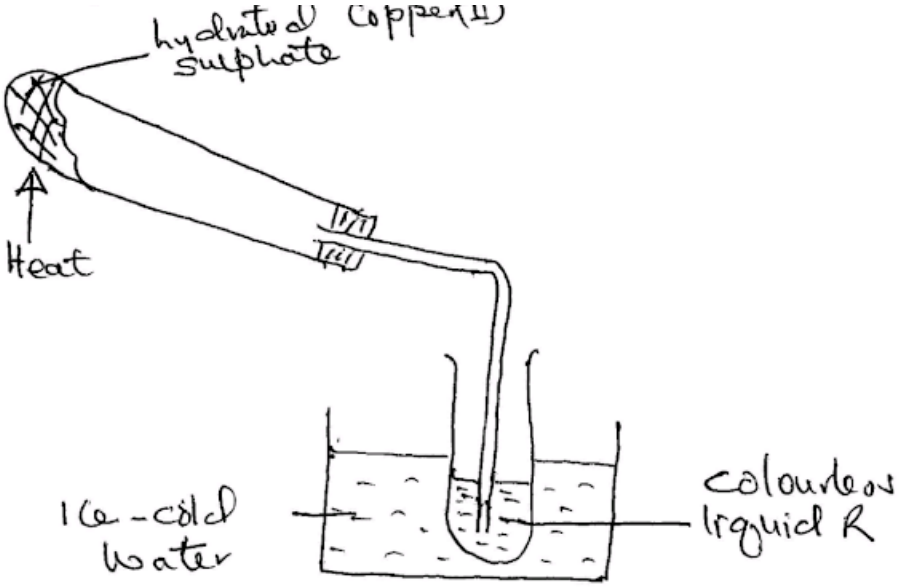
Drug abuse is the wrong usage of drugs, (1mk)
*

- true
- false

1 point

Hydrated Copper (II) Sulphate is heated in a boiling tube as shown.

State the colour of Copper (II) Sulphate before and after heating? (1mk)
*



- [ ] before white,
- [ ] after blue
- [ ] before blue
- [ ] after white

3 WAYS on How can the purity of the colourless liquid be confirmed? (3mks) * 3 points

- [ ] Testing melting point
- [ ] Testing it's boiling point
- [ ] Testing it's volatility

- [ ] Testing it's volatility
- [ ] testing its density
- [ ] Testing it's effect on litmus paper

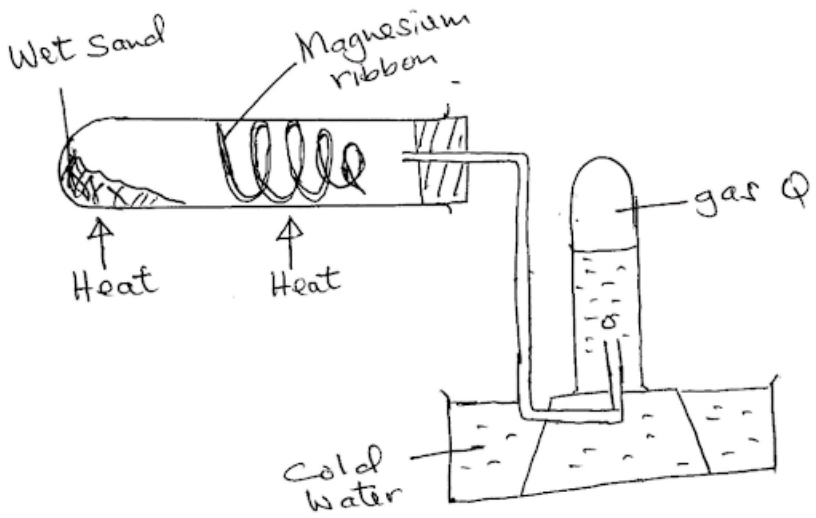
Name another substance that can undergo the same change as hydrated Copper (II) Sulphate 2 points (1mk)

*

- ( ) calcium sulphate
- ( ) sodium chloride
- ( ) iodine
- ( ) cobult (ii) chloride

A Magnesium ribbon was cleaned with steel wool and used in the following set up. Wet sand was heated before Magnesium ribbon. 3 points

Explain the following:
Sand was heated first before heating Magnesium ribbon (1mk)
*



- to produce fume
- to prevent magnesium from finishing up
- to produce steam which would react with magnesium
- to react with the steam produced

Magnesium ribbon was cleaned with steel wool , to remove it's oxide layer (1mk) 3 points

*

- ◯ true
- ◯ false

Name gas R (1mk) 1 point

- ◯ Hydrogen
- ◯ oxygen
- ◯ nitrogen
- ◯ carbon dioxide

ALL THE BEST.!!! WAIT FOR YOUR CERTIFICATE OF PARTICIPATION. AFTER SUBMITTING *

Your answer

Submit Clear form