

MARKING GUIDE
CHEMISTRY
FORM TWO

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

(10)

HSTA	i	ii	iii	iv	v
LITR	B	I	F	C	G

(05)

SECTION: B

(c) Luminous flame	Non-luminous flame
(i) Bright yellow with visible soot particles (ii) Cooler (iii) Incomplete combustion (iv) produce water vapour, Carbon dioxide and soot (v) Used for lighting, cooking	(i) Blue with no visible soot particles (ii) Hotter (iii) Complete combustion (iv) produce water vapour and Carbon dioxide (v) Used for heating, welding and soldering

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(05)

- (b) Non-luminous flames are more suitable for soldering than luminous flames because of:
- (i) Higher temperature.
 - This ensure that solder will melt quickly and efficiently creating a strong bond
 - (ii) Cleanliness
 - absence of soot prevents the solder joint from becoming contaminated
 - (iii) Precision
 - Due to smaller size and focused nature of the non-luminous flame, ensure precise heating of the solder joint
 - (iv) Temperature Control
 - The use of non-luminous flame allow for temperature control to produce the required heat
 - (v) Improved visibility
 - since the flame is less bright, it allow the work area to be visible while soldering

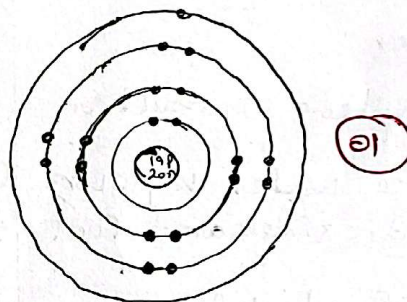
4. (a)(i)

Modifications of Dalton's atomic theory.

- Atoms can be created or destroyed or split by means of nuclear reactions (01)
- Some elements have atoms of more than one kind which differ slightly in mass, which are called isotopes (01)
- An atom is made up of smaller sub atomic particles called protons, neutrons and electrons (01)
- Atoms of different elements may combine in many different ratios to form complex compounds (01)

(ii) Potassium nucleus

Electronic configuration of Potassium



(b) R.A.M of Neon is

$$\left(20 \times \frac{90.5}{100}\right) + \left(21 \times \frac{0.3}{100}\right) + \left(22 \times \frac{9.2}{100}\right) \quad (01)$$

$$= \frac{1810 + 6.3 + 202.4}{100} \quad (01)$$

$$= \frac{2018.7}{100} \quad (01)$$

$$\text{R.A.M} = 20.187 \quad (01)$$

5. (a)(i) Periodicity: Refer to the recurrence of similar properties when elements are arranged according to the atomic number (02)

(ii)

I	II	III	IV	V	VI	VII	VIII
Alkali metals	Alkali earth metals					Halogens	Noble gases
Transition elements							

(04)

6 (a) Yes (01)

Reasons:

- (i) Hydrogen exist as a gas at room temperature (01)
- (ii) Hydrogen need one electron to attain duplet stable state (01)
- (iii) Hydrogen Can react with metal to form metal hydride (01)

6

- (a) (i) explosion and damage of equipment (01)
- (ii) slipping and falling (01)
- (iii) burns and damage to body parts such as eyes and skin. (01)
- (iv) Breakage and cuts (01)
- (v) poisoning by inhaling of harmful gases and fainting due to lack of oxygen. (01)

- (b)
- They do not fall into any of the classification (01)
 - It is not the electricity that burns but the burning material that has been set a light by the electric current (01)
 - Electricity can be a source of any of the five classes A, B, C, D and F (01)

(c) To List down four methods of preventing rusting

- Painting
- oiling
- Galvanization
- Tin plating
- Use of silica gel
- Sacrificial anode

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(01) (0.5) any 4 = (02) marks

7

(a) Physical changes

- (i) affect only physical properties of matter (01)
- (ii) Are temporary changes (01)
- (iii) Are easily reversible (01)
- (iv) No new substance is formed (01)
- (v) No energy is produced (01)

Chemical changes

- (i) Affect both physical and chemical properties of matter.
- (ii) Are permanent changes
- (iii) Are irreversible
- (iv) A new substance is formed
- (v) Energy is produced or absorbed

7 (b) Five things which could have failed if change of state could not be able to happen.

(i) Water cycle. (01)

→ Ability of water to change from liquid to gas (vapour), vapour to clouds and finally to rain could fail; thus no rain could be formed

(ii) Refrigeration (01)

→ Depends on changes of refrigerants from liquid state to vapour state.

(iii) Refinery (01)

→ Petroleum refinery and distilling work under the principle that liquids can change to vapour and then vapour changed to liquids

(iv) Steam engines (01)

→ Depend on change of water to steam for driving trains and ships

(v) Drying of materials (01)

→ depend on change of water from liquid to vapour

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8 (a) (i) • Because most of the chemicals are potential poisons
• Because some chemicals are harmful and may cause death. (01)
• Chemicals in the chemistry laboratory are not always safe. (01)

(ii) • Should be removed from the laboratory (01)

• Should be destroyed using proper methods. (01)

(b) Applications of chemistry in agriculture.

It is used to make

(i) fertilizers. (02)

→ Are used to improve the quality and quantity of crops and yields.

(ii) Pesticides (02)

→ Are used for controlling and destroying pests
→ are also used in animal dips

(iii) Animal vaccines

→ protect animals from diseases (02)

5 (b) Yes (01)

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(ii) shipping and falling (01)

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- (b)
- They do not fall into any of the classification (01)
 - It is not the electricity that burns but the burning material that has been set a light by the electric current (01)
 - Electricity can be a source of any of the five classes A, B, C, D and F (01)

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(0.5) any 4 = (02) marks

(a) Physical changes	Chemical changes
(i) affect only physical properties of matter (01)	(i) Affect both physical and chemical properties of matter. (01)
(ii) Are temporary changes (01)	(ii) Are permanent changes (01)
(iii) Are easily reversible (01)	(iii) Are irreversible (01)
(iv) No new substance is formed (01)	(iv) A new substance is formed (01)
(v) No energy is produced (01)	(v) Energy is produced or absorbed (01)

9. (a) (i) Properties of radicals
- Has positive or negative charge
 - Maintains identity throughout any chemical reaction
 - Can gain or lose electrons to form ions
 - Most radicals form the non-metallic part of the compound.
 - exist as a group of atoms behaving as a single unit.

(ii) Soln

Total charge of sulphur = -2

The oxidation number of oxygen = -2.

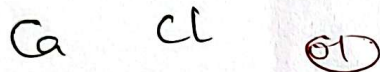
Therefore $S + (-2 \times 4) = -2$

$$S = 8 + -2$$

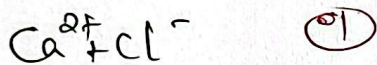
$$S = +6$$

∴ The oxidation state of sulphur is +6

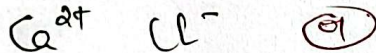
(b) Step 1 Write down the symbols for the element or radicals



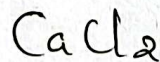
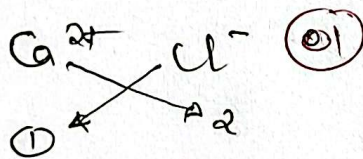
Step 2. Write down the ions used in the compound with their valencies as superscript



Step 3 : Write the valencies as superscript



Step 4: Interchange the valencies and write them as superscripts



SECTION C (15 Marks)

- 10 (a) (i) Manufacturing of margarine
- (ii) Filling weather balloon,
- (iii) - Preparation of water gas
- production of oxyhydrogen flame
- (iv) - Manufacture of Hydrochloric acid
- Manufacture of ammonia.

(b) (i) organic compounds

- In acids
- In bases
- In water

(02) (02) = (02 1/2) any four.

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- (ii)
- Reactions of dilute acids with some metals (01)
 - Reaction of water with hot carbon (01)
 - Reaction of water with some metal, (01)
 - Electrolysis of water (01)

(c) (i) Because it is less dense than water and slightly soluble in it (02 1/2)

(ii) It is lighter than air. (02 1/2)