



CHRISTIAN SOCIAL SERVICES COMMISSION

An Ecumenical Body of Tanzania Episcopal Conference and Christian Council of Tanzania

P.O. Box 9433, Dar es Salaam, Tanzania

CSSC SOUTHERN HIGHLAND ZONE

CHEMISTRY MARKING GUIDE

1.

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

2.

10 marks @ 01 Mark

i.	ii.	iii.	iv.	v.
D	H	E	A	I

05 marks @ 01 Mark

3. (a) Laboratory safety measures

- Store chemicals should be inspected regularly to ensure that they are not expired.
- All apparatus should be checked regularly
- All chemical containers should be well labeled
- Containers should be well checked to ensure that they do not leak.
- Emergence exits should be present, easy to access and use.

(b)

- Wear gloves for prevention of any infections
- Use your fingers to apply direct pressure onto the bleeding point for five to fifteen minutes.
- Raise the injured part and support it in a comfortable position that does not cause pain. This should not be done if a fracture is suspected or if it causes.
- Carefully clean the wound, but do not remove any object stuck in the wound as this would lead to more bleeding
- Place a sterile gauze on the wound and press it down firmly.

10 marks @ 01 mark

4. (a) 1.5marks = 6 marks)

- Toxic , since it poisonous and can cause death
- Flammable since catch fire easily
- Corrosive since corrode the skin surface
- Explosive since it can blast easily

(b) @1marks= 4 marks)

- It is transparent
- It is heat resistant
- It does not react easily with many chemicals
- It is easy to clean

5. (a)

- Evaporation and condensation
- Evaporation.
- Melting and Freezing

- iv. Evaporation and condensation.
- v. Evaporation **05 marks @ 01 mark**

(b)

- i. It is easy to pour liquid because the particles in a liquid are not fixed in one position, they can move and slide past one another
- ii. A gas will completely fill any container because in a gas the particles are far apart with no regular order **05 marks @ 2.5 marks**

6. (a)

- i. Matter is made up of tiny particles called atom
 - ii. Atom can neither be created nor destroyed
 - iii. Atom of the same element are identical
 - iv. Atom always combine in sample whole number ratio
- Any four **@ 1 mark = 4 marks**

(b)

- i. $_{10}^{21}\text{Ne}$ **(01 marks)**
- ii. Neutron = mass number – atomic number
Neutron = 21-10
Neutron is 11 **(01 marks)**

(c) $X\% = 100 - (2 + 24 + 22)\%$

$$= 52\%$$

r.a.m = sum of isotopic mass $\times$ percentage abundance

$$207 = \frac{(204 \times 2) + (206 \times 24) + (207 \times 22) + (A \times 52)}{100} \quad \mathbf{01 \text{ mark}}$$

$$100$$

$$20700 = 405 + 4944 + 4554 + 52A$$

$$20700 = 9906 + 52A$$

$$20700 - 9906 = 52A$$

$$\underline{10794 = 52A}$$

$$52 \quad 52$$

$$A = 207.58. \quad \mathbf{03 \text{ marks}}$$

7. (a)

- i. TQ_2 **(01 marks)**
- ii. Ionic or electrovalent bond because involve transifer of electron from T to q in order to attain stability **(2 marks)**

(b) Hydrocarbon contain carbon and Hydrogen only

Hydrogen = 20%

Carbon = 100% - 20%

= 80% **01 mark**

Element.	Carbon.	Hydrogen.
% composition	80%	20%
R.A.M	12	1
%Composition/R.A.M	80/12	20/1
Divide by smallest number	6.67/6.67	20/6.67
	1	2.99
Whole number	1	3

Empirical formula is CH₃ **03 marks**

Molecular formula= n (empirical formula)

But molecular formula= relative atomic mass= 2×vapor density

$$= 2 \times 15$$

$$= 30$$

Molecular formula= n(CH₃)

$$30 = n(12 + 3)$$

$$30 = 15n$$

$$n = 2 \quad \text{01 mark}$$

Molecular formula is 2(CH₃) = C₂H₆ **02 marks**

8. (a)

- Water pollution. Chemist develop water purification chemicals and filtration methods to make water safe for use
- Air pollution. Chemists create cleaners fuels, catalytic converters and technologies that reduce harmful emissions.
- Food shortage. Chemists produce fertilizers, pesticides and food preservation methods to increase food production and reduce spoilage.

- iv. Plastic waste. Chemists develop biodegradable plastics and recycling technologies to reduce environmental pollution. **04 marks @ 01 mark**

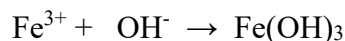
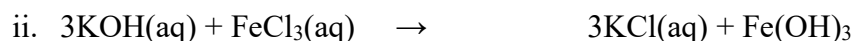
(b) Food digestion involves chemical reactions that break large food molecules into smaller nutrients the body can absorb. Enzymes act as biological catalyst. **02 marks**

(c)

- i. Soap and detergents. Remove dirty and grease by washing them away
- ii. Ammonia solution. Cleans glass
- iii. Bleach. Kills germs
- iv. Baking soda. Remove odors **04 marks @ 01 mark**

9. (a)

- i. Precipitation reaction or double displacement **(01 marks)**

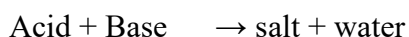


(b)

- i. They help to calculate the correct amount of reactant needed and product formed
- ii. They improve efficiency in production by ensuring chemicals react in proper ratios
- iii. They enhance safety by preventing dangerous excess chemicals or unexpected reactions
- iv. They help industries to estimate production costs accurately and reduce unnecessary expenses
- v. They help in planning large scale industries process and maintaining product quality
- vi. They assist in controlling pollution by minimizing waste product

Any four point @ 1.5 marks = 6 marks

10. NEUTRALIZATION is the reaction between an acid and base to produce salt and water



Application of neutralization

- i. Treating insect stings and bite
- ii. Relieving ingestion
- iii. Soil treatment
- iv. Preventing formation of acidic rain
- v. Neutralizing accidental spills
- vi. Manufacturing fertilizers
- vii. Treating factory waste

Introduction 2marks

Main body

@ 2marks= 12 marks

Conclusion = 1 marks

Total = 15 marks