



TANZANIA HEADS OF ISLAMIC SCHOOLS COUNCIL
FORM TWO INTER ISLAMIC MOCK EXAMINATION
CHEMISTRY

MARKING SCHEME

2025

SECTION A (15 Marks)

1.

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

1 Mark x 10 = 10 Marks

2.

LIST A	(i)	(ii)	(iii)	(iv)	(v)
LIST B	E	A	D	B	C

1 mark x 5 = 05 Marks

SECTION B (70 Marks)

3. (a) Important of studying science studies.

- (i) It helps in manufacture of medicine used to cure sick people.
- (ii) It helps to develop a professional such as doctor, teacher and engineer.
- (iii) It helps in manufacture of fertilizer to improve quality and quantity of crops.
- (iv) Helps in manufacture of fuel and lubricants used in transportation.
- (v) It helps in manufacture of home care and beauty products such as cosmetics and soaps.
- (vi) Helps in manufacturing industries such as textile industries to produce various products.

[Any 05 points = 05 marks @ 01 mark]

(b) The scientific skills acquired by the Chemist are:

- (i) Careful and thorough observation.
- (ii) Accurately recording of what has been observed.
- (iii) Organizing test to make sure that the observation made are accurate
- (iv) Drawing conclusion from observation

- (v) Predict possible outcomes of similar experiment.

[Any 05 points = 05 marks @ 01 mark]

4. (a) (i) Water **[01mark]**

- (ii) It is used in domestic for drinking, cooking food, cleaning clothes and our environments.

- It is used a way of transport through which boats and ships sail.
- It is used in recreation for stance, formation of swimming pools and fishing sport.
- Used in manufacturing industries for cooling machine and manufacture of products.
- It is used in mining during purification of minerals.
- It is used in production of energy (HEP).
- Used in construction during mixing of sand and cement.
- It is used in fishing activities.

[Any 05 points = 05 marks @ 01 mark]

- (b) (i) It burns with an exploding “pop” sound.

- (ii) It will react with atmosphere oxygen, water vapour and form rust.

[02 marks @ 01 mark]

- (c) (i) Carbon + Oxygen → Carbon dioxide



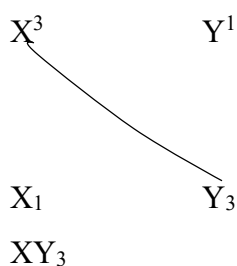
- (ii) Sodium + Oxygen → Sodium oxide



5. (a) (i) $X = 3$ **[01 mark @ 00 ½ mark]**

$$Y = 1$$

- (ii) X^2 and Y



[02marks]

- (iii) Ionic/Electrovalent bond **[01mark]**
 - (b)
 - (i) Are soluble in water.
 - (ii) They conduct electricity in solution or when in molten state
 - (iii) Are usually crystalline solids at room temperature
 - (iv) They high boiling and melting points
 - (v) Are insoluble in organic (non-polar) solvents such as ethanol, ether and benzene
 - (vi) Are formed between metal and non-metal elements.
 - (vii) They are formed by transferring of electrons

[05 marks @ 01 mark]
 - (c) Electronegativity increase from X to Y across the periodic table due to increase of effective nuclear charge. (Y has high electronegativity while X has low electronegativity **[01 mark]**)
6. (a) (i) Oxygen **[00 ½ mark]**
- (ii) Oxygen is tasted by introducing a glowing wooden splint into a gas jar containing oxygen gas, if oxygen is present it lights up wooden splint **[01mark]**
 - (iii) Because oxygen is less dense than water. **[01mark]**
Slightly soluble in water.
- (b) (i) Flat bottomed flask/round bottomed/conical flask.
- (ii) Thistle funnel
 - (iii) Delivery tube
 - (v) Trough
 - (vi) Beehive shelf
 - (viii) Gas jar
- [Any 05 points, 02 ½ @ 00 ½ mark]**
- (c) (i) -To speed up the rate decomposition of hydrogen peroxide. **[01 mark]** used as a Catalyst.
- (ii)
 - Used in transport as oxidizer jar rocket and respiration in aircraft and submarine
 - Used in medical/hospitals as aid in breathing, Anesthesia and incubator for premature babies.
 - Used in environment like treatment of sewage.
 - Used in diving
 - Used to support combustion

- Used in seed germination
- Used for climbers when climbing mountains

[Any 04 points, 04 marks @ 01 mark]

7. (a) (i) Have high energy value (colorific value)
- (ii) Burn with moderate velocity for continuous supply of heat
- (iii) Have proper (moderate) ignition point
- (iv) Have no content of non-combustible materials such as ashes.
- (v) Give clean gases during combustion
- (vi) Have high pyrometric effect
- (vii) Easy and safe to transport, handle and store
- (ix) Do not pollute the environment
- (x) Leaves no residues
- (xi) Reduce deforestation

Add: Also disadvantages of using firewood

[Any 06 points = 06 @ 01mark]

(b) Data given

Mass of petrol (fuel) = 20g = 0.02kg

Volume of water = 2.5L = 0.0025m³

Heat value of fuel = 43640Kjkg⁻¹

Specific heat capacity of water = 4.18Kjkg⁻¹k⁻¹

Density of water = 1000kg m⁻³

Temperature change = ? **[01mark]**

Solution

From

$$\text{Heat value} = \frac{\text{Total energy liberate}}{\text{Mass of fuel}} \quad \mathbf{[01mark]}$$

But

$$\begin{array}{ccccccc} \text{Total energy} & = & \text{Mass of} & \times & \text{Specific} & \times & \text{Temperature change} \\ \text{Liberated} & & \text{Water} & & \text{Heat capacity} & & \end{array}$$

Thus

$$\text{Heat value} = \frac{\text{Mass of water} \times \text{Specific heat capacity of water} \times \text{temperature change}}{\text{Mass of fuel}} \quad \mathbf{[00 \frac{1}{2} \text{ mark}]}$$

Where mass of water = Density of water x Volume of water.

$$\text{Mass of water} = 1000 \times 0.0025 = 2.5\text{kg} \quad \mathbf{[00 \frac{1}{2} \text{ mark}]}$$

Now,

$$= \frac{2.5 \times 4.18 \times \text{Temperature change}}{0.02}$$

$$= 43640$$

Therefore, temperature change = 83.52K [01mark]

8. (a) (i) Rusting [01 mark]

(ii) Iron + Water $\xrightarrow{\text{Air (O}_2\text{)}}$ Rust [01 mark]

(b) (i) Painting – Is the coating of iron item with a special pigment that prevents it from getting into contact with air and water.

(ii) Oiling – Is the coating of iron with oil. Some machine parts can not be protected painting so they use oil.

(iii) Galvanization – Is the process of coating iron by using zinc.

(iv) Tin plating – Is the process of coating iron/steel with tin.

(v) Use of silicagel – Is a substance which absorb moistures. Are in the form of grams which prevent water from reaching the iron/steel.

(vi) Electroplating – Is a process of coating a metal with another metal by using electricity (electrolysis).

(vii) Anodizing/sacrificial method – Iron is joined to reactive metal (i.e. magnesium) by wire e.g. bridges and pipelines.

(viii) The use of a plastic to coat a steel

[Any 5 points = 05 marks]

(c) (i) Keep reasonable distance (such as 3 meters) from the fire as it may suddenly change the direction.

(ii) Never use potable fire extinguisher on people instead use of fire blanket.

(iii) Do not test a potable fire extinguisher it may leak and afterward fail to work during an emergency/accident.

(iv) Do not return a used portable fire extinguisher to the wall.

(v) When a fire gets out of control, abandon it and notify the nearest fire fighting squared (fire brigade).

[Any 3 points @ 1 mark = 03 marks]

9. (a) Muddy water is a mixture.

REASONS

- (i) The components can be separated from one another by Physical process.
- (ii) It's components can be mixed at various ratios or proportions.
- (iii) The properties of muddy water, are those of the individual components.
- (iv) No change (chemically) occur when muddy water forms.
- (v) The components of muddy water can be seen separately.

[Any 04 points = 4 marks @ 01 mark]

- (b) (i) Dependent variable is solubility of the sodium chloride.
- (ii) Independent variable is temperature.
- (iii) Controlled variable is the amount of sodium chloride, amount of solvent (likely water), pressure (if applicable) or stirring rate (if applicable). **[03 marks @ 01 mark]**

- (c) (i) Are used for carrying out scientific experiments.
- (ii) Are used in project works.
- (iii) Are used in field work
- (iv) Are used in school laboratories
- (vi) Are used in hospitals
- (vii) Are used in Industries
- (viii) Are used in research centres

[03 marks @ 01 mark]

SECTION C (15 Marks)

10.

- (a) For paper chromatography, it involves the stationary phase example solvent like (acetone, ethanol or water) and the mobile phase example uniform absorbent paper (filter paper).

[Any relevant introduction 01 marks]

(b) MAIN BODY

- Used in Chemistry to separate mixtures and test the purity or composition of organic substances.
- Used in biology to analyze protein, enzymes and plasma.
- Used in health and environment to test for water pollution, soil pollution and air pollution, it also test for food contamination.
- Used in medicine to study blood cells and detect types of drugs in bloods.

- Used in security to analyse blood in crime cases, detect different fibres and to test drugs.
- Used in industries to test shelf-life of food substances, quality of food and other products and purification of substances.

[12 marks @ 02 marks]

(Any relevant and good conclusion 01 mark)