



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION
VHEMBE EAST DISTRICT

VHEMBE EAST DISTRICT

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

**PHYSICAL SCIENCES
TERM 3 PRACTICAL TEST 2
MARKING GUIDELINE**

MARKS: 25

This Marking Guideline consists of THREE (3) pages including the cover page.

QUESTION 1

1.1 It is a solution of known concentration. ✓✓ (2)

1.2 $c = \frac{m}{Mv}$ ✓

$$0.1 \checkmark = \frac{m}{(90)(0,5) \checkmark}$$

$$m = 4,5 \text{ g } \checkmark \quad (4)$$

1.3 A : Erlenmeyer flask / Conical flask ✓

D : Burette ✓ (2)

1.4 Pipette. ✓ (1)

- 1.5
- Wear rubber gloves to protect your hands. ✓
 - Wear goggles to protect your eyes. ✓
 - Put on closed-toe shoes to protect your foot. ✓
 - Wear plastic apron to shield your front side. ✓
 - Use paper towel to wipe all spills of NaOH. ✓

ACCEPT ANY TWO VALID PRECAUTIONS. (2)

1.6 Phenolphthalein. ✓ (1)

1.7 In order to clearly see the colour change of the solution. ✓ (2)

1.8 Pink. ✓ (1)

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QUESTION 2

- 2.1 Apparatus A contains a certain number of moles of a base that is neutralised by the acid. Water dilutes the solution ✓ but does not change the number of moles ✓ of the acid or base.

OR

The titration reaction depends on the stoichiometry of the reaction, which is determined by the mole ratio of the reactants ✓, not the solution's concentration. ✓ (2)

- 2.2 $\text{H}_2\text{C}_2\text{O}_4(\text{aq}) + 2\text{NaOH}(\text{aq}) \checkmark \rightarrow \text{Na}_2\text{C}_2\text{O}_4(\text{aq}) + 2\text{H}_2\text{O} \checkmark$ Balancing ✓

OR

$(\text{COOH})_2 (\text{aq}) + 2\text{NaOH} (\text{aq}) \checkmark \rightarrow (\text{COONa})_2 (\text{aq}) + 2\text{H}_2\text{O} \checkmark$
Balancing ✓ (3)

- 2.3 $[\text{H}_2\text{C}_2\text{O}_4] = 0,1 \text{ mol} \cdot \text{dm}^{-3}$ Average volume = $37,3 \text{ cm}^3$

$$\frac{c_a V_b}{c_b V_a} = \frac{n_a}{n_b} \checkmark$$

$$\frac{(0,1)(37,3) \checkmark}{c_b 25 \checkmark} = \frac{1}{2} \checkmark$$

$$c_b = 0,296 \text{ mol} \cdot \text{dm}^{-3} = 0,3 \text{ mol} \cdot \text{dm}^{-3} \checkmark \quad (5)$$

[10]

TOTAL: [25]