Education

KwaZulu-Natal Department of Education
REPUBLIC OF SOUTH AFRICA

PHYSICAL SCIENCES

PRACTICAL EXAMINATION

MARKING GUIDELINE

AUGUST 2019

UMLAZI DISTRICT

GRADE 12

TIME: 2 hours

MARKS: 100

This question paper consists of 5 pages.

QUESTION ONE

1.1 C
1.2 C
1.3 C
1.4 D
1.5 B
1.6 B
1.7 A
1.8 A [8 x 2 = 16]

QUESTION TWO

2.1 To generate a momentum/ exert equal but opposite forces on the trolleys√

2.2 0/zero √

2.3 mass √

2.4 A = 0,918√ B = 0,011√

2.5 The total linear momentum of an isolated system remains constant. √√ [9]

QUESTION THREE

3.1 Object upon which the only force acting is the force of gravity. √√

3.2 CRITERIA:

- Appropriate scale √
- Axes correctly labelled, with time on y-axis √
- Title indicated √
- 2 points correctly plotted √
- All points correctly plotted √
- Line of best fit √ (6)

3.3 gradient = $\Delta v/\Delta t$

= 2,9/0,3 √= 9,67 $m \cdot s^{-2}$ √ (range: 9.5-9.9)

Acceleration due to gravity√

3.4 displacement = (6,1 x 0,63)0,5√√ = 1,922 m√

3.5 Remains the same√.(**NEGATIVE MARKING**)
Acceleration due to gravity is constant√

[16]

QUESTION FOUR

4.1 Speed up the reaction rate/ act as catalyst√

4.2 propan-1-ol √√ (If propanol, then ½)

4.3 Excess reactants (acid) will be neutralized by the carbonate√. The insoluble ester floats on the water and can be detected. √

4.4 functional group correct √ whole structure correct √

4.5 esterification/ condensation√ [8]

QUESTION FIVE

5.1 Sulphur formed√

5.2 Change in the amount/ concentration of reactants / products per unit time. √√

5.3 Change the concentration of the thiosulphate solution√√

5.4 Concentration√

5.5 Increase in concentration increases reaction rate√√

5.6 Surface area was increased√

5.7.1 YES√ . Only one variable was changed√ **(NEGATIVE MARKING**)

5.7.2 Temperature√

5.8 Catalyst was added√√

5.9 no of moles Mg reacted = 2 g/24 g/mol = 0,0833 mol√

No. of moles of HCl that reacted = 2 (0,0833) = 0,167 mol √

Rate of reaction = 0,167/10 √√ = 0,0167 mol/s √ (5) [19]

QUESTION SIX

6.1 A: burette√

B: retort stand√

C: conical/ Erlenmeyer flask√

6.2 Colour change can be observed easily/accurately√

6.3 NaOH√

6.4 The concentration of the solution that it is to contain remains unchanged/ not diluted. √√

6.5 Average volume = 21,995 cm^3√√

6.6 **POSITIVE MARKING FROM 6.5**

C_AV_A / C_BV_B = ½√

0,095 X 25 X 2√ / 21.995√ = C_B = 0,216 mol.dm^3 √ (4) [13]

QUESTION SEVEN

7.1 Resistance within the battery√ that causes a drop in potential difference of the battery when current flows√.

7.2 Lost volts increases√. From Emf = Vext + Lost volts, for a constant emf, √ Vext must decrease. √

7.3 A√. Steeper gradient√ **(NEGATIVE MARKING)**

7.4 Lost volts = 1,5 V√√

7.5 gradient = (2-1) √/ (3-4,5) √= 1/1,5

r = 1,5 Ω√ [12]

QUESTION EIGHT

8.1 L_1√

8.2 Less than√. **(NEGATIVE MARKING)** Resistance of parallel branch less than resistance of L_1√. Same current passes through the entire parallel branch√. From V = IR, V_3 will be lower.

8.3 Less than √. (L_5 might not light up). **(NEGATIVE MARKING)** The wire acts as a short circuit√. Current bypasses L_5. √ [7]

TOTAL 100

NAME OF LEARNER: _____