Education

KwaZulu-Natal Department of Education
REPUBLIC OF SOUTH AFRICA

PHYSICAL SCIENCES

INFORMAL TEST 2

APRIL 2019

MARKING GUIDELINE

UMLAZI DISTRICT

GRADE 12

TIME: **1 hour**

MARKS: 50

This MARKING GUIDELINE consists of 3 pages.

QUESTION ONE: MULTIPLE CHOICE

1.1 A
1.2 B
1.3 C
1.4 A
1.5 C 5X2= 10

QUESTION TWO

2.1 Change in concentration/amount of reactants or products per unit time (1 or) (1)

2.2.1 Collision between reactant particles that lead to the formation of products (1)

2.2.2 Sufficient kinetic energy√; correct orientation√ (2)

2.2.3 Increase in concentration increases the number of particles per given volume√. This increases the number of collisions per unit time√. This leads to an increase in the number of effective collisions per unit time√. Hence increase in concentration increases reaction rate√ (4)

2.3.1 Rate = $-\Delta$(reactants)/time√
= -(0,8-1,40)/120√√
= 0,005 mol/min√ (4)

2.3.2 Moles N_2O_5 reacted = 1,40 – 0,80 = 0,60 mol√
Moles of oxygen present = 0,3 mol√
Mass O_2 = n x RM√
= 0,3 x 32 √
= 9,6 g √ (5)

QUESTION THREE

3.1 6 kJ/mol (1)
3.2 -6 kJ/mol (1)
3.3 13 kJ/mol (1)
3.4 20 kJ/mol (1)
3.5 10 kJ/mol (1)

QUESTION FOUR

4.1 When the equilibrium in a closed system is disturbed, the system will re-instate a new equilibrium by favouring the reaction that will oppose the disturbance (1)

4.2.1 Turns blue (1)

4.2.2 Pink (1)

4.2.3 Turns blue√
Increase in temperature favours the endothermic reaction to reduce the stress√. Since reverse reaction is endothermic it will be favoured√ leading to more $CoC\ell_4^-$ ions√ (4)

4.2.4 Turns blue (1)

QUESTION FIVE

5.1

	H_2 (g) +	I_2 (g) ⇌	2HI (g)
INITIALLY:	2	2	0
CHANGE :	1,56	1,56 √	3,12√
AT EQUI :	0,44	0,44	3.12
[EQUI] :	0,22	0,22	1,56√

$K_c = [HI]^2 / [H_2][I_2]$ √

$= (1,56)^2/(0,22)(0,22)$ √

$= 50,28$√ (6)

5.2.1 REMAINS THE SAME√ (1)

5.2.2 INCREASES√. Concentration of reactants increase√ (2)

5.2.3 REMAINS THE SAME. √ Increase in pressure does not affect the equilibrium position of this reaction√/ 2 moles of reactants forming 2 moles of products (2)