Practice Question Set For A-Level
Subject : Chemistry
Paper-2 Topic: Rate Equations

Merit Minds
www.merit-minds.com
Exam Preparation and Free Resources

Name of the Student:_____
Max. Marks : 20 Marks **Time : 20 Minutes**

Mark Schemes

Q1.

(a) (i) 2 **(1)**

(ii) 0 **(1)** 2

(b) (i) *Value of k*: $k = \frac{\text{rate}}{[NO]^2[O_2]} = \frac{6.5 \times 10^{-4}}{(5.012 \times 10^{-2})^2 (2.0 \times 10^{-2})} = 13$

Units of k: $mol^{-2}\ dm^6\ s^{-1}$ **(1)**

(ii) rate = $13\ (6.5 \times 10^{-2})^2\ (3.4 \times 10^{-2})$
$= 1.9 \times 10^{-3}$ $(mol\ dm^{-3}\ s^{-1})$ **(1)**

If k wrong, the mark in (ii) may be gained conseq for their $k \times 1.437 \times 10^{-4}$

4

[6]

Downloaded from www.merit-minds.com

Q2.

(a) (i) Experiment 2 2.60×10^{-3}

1

Experiment 3 0.60×10^{-2}

1

Experiment 4 11.4×10^{-2}

1

(ii) $k = \frac{10.4 \times 10^{-3}}{(4.80 \times 10^{-2})(6.60 \times 10^{-2})^2}$

1

= 49.7

(Allow 49.8 and 50)

1

$mol^{-2}\ dm^6\ s^{-1}$

1

(b) No change

1

[7]

Downloaded from www.merit-minds.com

Q3.

(a) (i) Experiment 2: 0.4(0) × 10^{-3} **(1)**
Experiment 3: 0.15 **(1)**
Experiment 4: 0.28 **(1)**

(ii) $k = \frac{4.8 \times 10^{-3}}{(0.20)^2 \times (0.30)}$ = 0.4(0) mol^{-2} dm^6 s^{-1}
(1) **(1)** **(1)**

6

(b) (change in) <u>temperature</u> **(1)**

1

[7]

Downloaded from www.merit-minds.com