Practice Question Set For A-Level
Subject : Chemistry
Paper-2 Topic: Chemical Equilibria, Le Chatelier's Principle And Kc

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

Mark Schemes

Q1.

(a) Amount of A = 0.32 mol

Amount of B = 0.04 mol

2

(b) $K_c = \frac{[C]}{[A][B]^2}$

1

(c) **M1** greater / increases

M2 the equilibrium shifts in the <u>exothermic</u> direction

M3 to increase the temperature / to oppose the temperature decrease

3

(d) **M1** $[B]^2 = \frac{[C]}{[A]\,Kc}$ **or** $[B]^2 = 0.16559829$ **or** $[B] = \sqrt{\frac{[C]}{[A]\,Kc}}$ **or** $[B] = \sqrt{\frac{0.62}{0.48 \times 7.8}}$

M1 *- allow consequential to incorrect (b)*

M2 [B] = 0.406938

M2 *- evaluation of [B] from M1*

M3 [B] = <u>0.41</u> Answer to 2sf

M3 *- M2 given to 2sf*

3

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Q2.

(a) M1 0.176

M2 0.549

M3 0.275

Allow answers to 2 significant figures

3

(b) 21.1 (kPa)

*Allow answer to question **(a)** x 120 and answer in kPa*

Allow 21.6 (kPa)

Answer using given value of 0.380 mol = 45.6(kPa)

1

(c) M1 $K_p = \frac{p(NO)^2 p(O_2)}{p(NO_2)^2}$

M2 $= \frac{K_p \times \text{mol frac } (NO_2)^2}{\text{mol frac } (NO)^2 \times \text{mol frac } (O_2)}$ OR $\frac{59.7 \times (0.31)^2}{(0.46)^2 \times (0.23)}$

M3 = 117.9 (kPa) or 118 (kPa)

*Do **not** allow square brackets*

Rearrangement

3

(d) Decrease

No change

2

(e) M1 Reaction is endothermic OR exothermic in backwards direction

M2 Equilibrium shifts/moves in backwards direction/to the left to raise the temp/oppose the decrease in temp

2

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