Oxford Cambridge and RSA

GCSE Chemistry B (Twenty First Century Science)

J258/03 Breadth in chemistry (Higher Tier)

Question Set 7

1 This is an equation for a reaction that occurs in a lightning flash.

$N_2 + O_2 \rightleftharpoons 2NO$

Very high temperatures are needed.

(a) **(i)** Explain how you can tell that this equation refers to an equilibrium. **[1]**

(ii) Use ideas about rates to explain what is happening when the reaction reaches dynamic equilibrium. **[2]**

(b) Scientists can use this reaction to make nitrogen compounds from gases in the air.

(i) Suggest a use for these compounds. **[1]**

(ii) The scientists discuss increasing the pressure on the reaction.

Describe and explain the effect on the equilibrium position. **[2]**

(c) There are several ways of making nitrogen compounds from nitrogen gas in industry.

Give **two** reasons why scientists may choose this reaction and **one** against. **[3]**

Total Marks for Question Set 7: 9