Equilibria – 2021/20 GCSE Gateway Chemistry A

1. Nov/2021/Paper_J248/04/No.22(b)

(b) The reaction to make hydrogen iodide is an equilibrium reaction.

$H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$

The forward reaction is **exothermic**.

The yield of hydrogen iodide and the rate at which the reaction reaches equilibrium are affected by different conditions.

Look at two possible reaction conditions, **A** and **B**, the company could use for this reaction.

	Temperature (°C)	Pressure (atmospheres)	Catalyst?
A	450	1	Yes
B	700	3	No

The company decides to use reaction conditions **A**, instead of **B**.

Explain why they make this choice.

Use ideas about **rate of reaction** and **position of equilibrium** to help you.

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..... **[4]**

2. Nov/2020/Paper_J248/04/No.9

The Contact process produces sulfur trioxide, SO_3, in an **exothermic** reaction.

$$2SO_2 + O_2 \rightleftharpoons 2SO_3$$

The temperature in the reaction vessel is usually 450 °C.

What happens as the temperature is increased to 600 °C?

A Higher rate of reaction and increased yield of sulfur trioxide.

B Higher rate of reaction and decreased yield of sulfur trioxide.

C Higher rate of reaction and no change in yield of sulfur trioxide.

D Lower rate of reaction and decreased yield of sulfur trioxide.

Your answer ☐ **[1]**