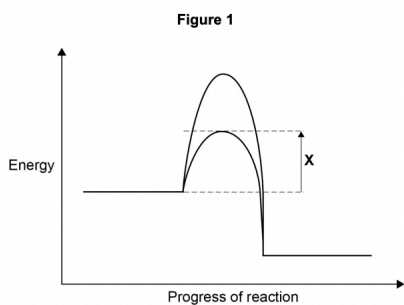


(Collision theory and activation energy)

Q1.(2020)

Figure 1 shows the reaction profile for the production of ammonia both with a catalyst and without a catalyst.



What is represented by label X?

[1 mark]

Tick (✓) **one** box.

Activation energy with a catalyst

☐

Activation energy without a catalyst

☐

Overall energy change with a catalyst

☐

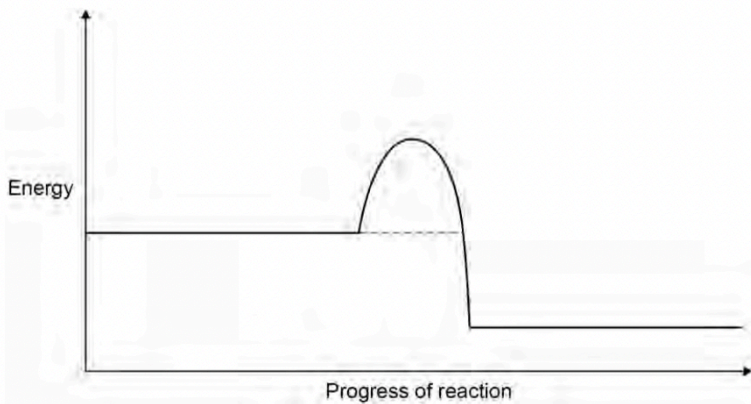
Overall energy change without a catalyst

☐

Q2.a)(2024)

Figure 11 represents the reaction profile of the catalysed reaction between ammonia and oxygen.

Figure 11



Complete the reaction profile for the catalysed reaction in **Figure 11**.

You should:

- label the activation energy
- label the reactants and products, using the names of the reactants and products.

[2 marks]

Q2.b)(2024)

How would **Figure 11** be different if **no** catalyst was used?

[1 mark]

Tick (✓) **one** box.

The final energy level would be higher.

☐

The final energy level would be lower.

☐

The line would reach a higher peak.

☐

The line would reach a lower peak.

☐