



Oxford Cambridge and RSA

A Level Chemistry A

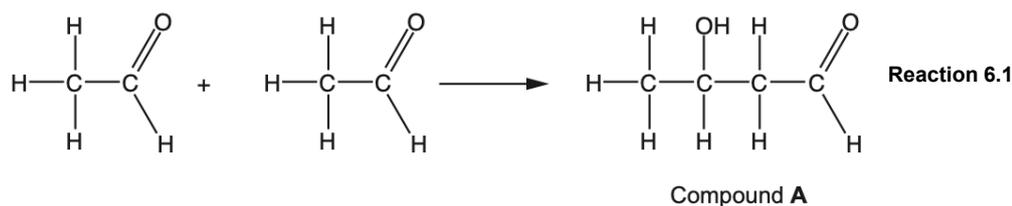
H432/03 Unified chemistry

Question Set 11

1 This question is about organic reactions.

(a) Compound **A** is formed when ethanal is mixed with OH^- (aq) ions, which act as a catalyst.

The balanced equation is shown in **reaction 6.1** below.



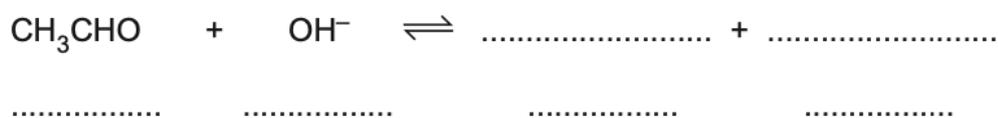
(i) Give the systematic name for compound **A**. [1]

(ii) What type of reaction has taken place? [1]

(iii) **Reaction 6.1** takes place in two steps. OH^- ions act as a catalyst.

In **step 1**, ethanal reacts with OH^- ions to set up an acid–base equilibrium.
In **step 2**, compound **A** is formed.

- Complete the equilibrium for **step 1** and label the conjugate acid–base pairs as: **A1**, **B1** and **A2**, **B2**.



- Suggest the equation for **step 2**. [3]

(iv) A similar reaction takes place when propanone, $(\text{CH}_3)_2\text{CO}$, is mixed with OH^- (aq) ions.

Draw the structure of the organic product of this reaction. [1]

(b)* Many organic reactions use electrophiles as reagents.

Explain the role of electrophiles in organic chemistry.

Your answer should include **one** reaction of an aliphatic compound and **one** reaction of an aromatic compound, including relevant mechanisms. [6]

Total Marks for Question Set 11: 12

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