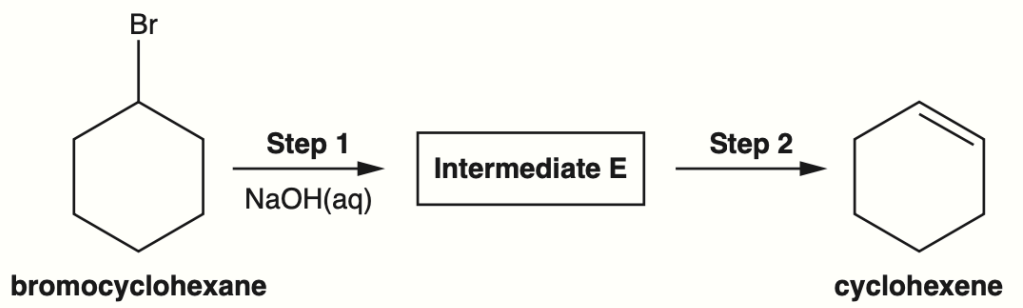
AS level Chemistry A

H032/02 Depth in chemistry

Question Set 6

6. Organic compounds can be prepared in the laboratory using synthetic routes with two or more stages.

(a) A student devises a two-stage synthesis of cyclohexene from bromocyclohexane.



(i) Suggest the structure of **intermediate E** and the reagent(s) and conditions for **step 2**.

[2]

(ii) The student carries out this synthesis and obtains 1.23 g of pure cyclohexene from 5.50 g of bromocyclohexane.

Calculate the percentage yield of cyclohexene.

Give your final answer to an **appropriate** number of significant figures.

[3]

(b) Cyclohexene is reacted with bromine to prepare the organic compound **F**.

Give the structure of compound **F** and outline the mechanism for this reaction.

Include curly arrows, charges and relevant dipoles.

[4]

Total Marks for Question Set 6: 9