



- 2) The compound (*R*)-2-iodopentane may be *hydrolysed* by refluxing it with aqueous sodium hydroxide. Most of the product is formed by an S<sub>N</sub>2 reaction.
- a) What is the main product of this reaction? Give a perspective formula and a name. (2)
- b) Give a mechanism for the reaction showing the transition state and explain why it leads to inversion of configuration. (5)
- c) Hydrolysis of (*R*)-3-methyl-3-bromohexane under appropriate conditions produces a racemic mixture of (*R*)- and (*S*)-2-methyl-2-hexanol.
- i) Explain the meaning of the term *racemic*. (1)
- ii) Suggest a name for the mechanism that is operating here. (1)
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- iii) Explain how this mechanism leads to racemisation. (3)