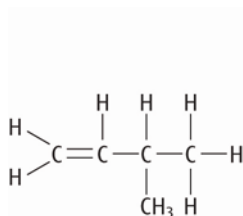
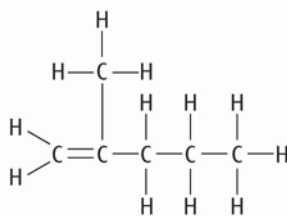
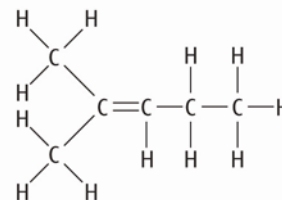
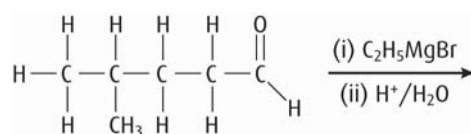


## Core Worksheet – Option G

- 1 a** Draw the structural formula of the major product formed when each of the following alkenes reacts with hydrogen bromide. [3]

**A****B****C**

- b** Draw the structure of the two possible intermediate carbocations that can be formed when B reacts with HBr and explain which is more stable. [5]
- 2** Butanone reacts with hydrogen cyanide.
- a** Draw the full structural formula of the organic product formed. [1]
- b** Write a balanced equation, using structural formulas for the organic compounds, for the reaction that occurs when the product in part **a** is heated with aqueous acid. [2]
- 3 a** Draw the structure of the organic product formed when pentan-3-ol is heated with concentrated phosphoric acid. [1]
- b** Give the name of the type of reaction that occurs in part **a**. [1]
- 4** Draw the structural formula of the organic product formed when propanal reacts with 2,4-dinitrophenylhydrazine. [2]
- 5** Explain how the number of isomers of  $C_6H_4Cl_2$  provides evidence for a delocalised structure for benzene. [4]
- 6 a** State the reagents and conditions required for the conversion of 1-bromopropane into a Grignard reagent. Give the formula of the Grignard reagent formed. [3]
- b** Draw the full structural formula and name the final product of the reaction when the Grignard reagent in part **a** is reacted with  $CO_2$  followed by  $H^+/H_2O$ . [2]
- c** Complete the following equation by showing the structure of the organic product formed. [1]



- 7** Design a reaction pathway, showing reagents, conditions and the structural formulas of all organic compounds, for the conversion of propanone to 2-methylpropene. [8]
- 8** For each of the following pairs of compounds, explain which is more acidic.
- a** ethanoic acid or chloroethanoic acid [4]
- b** 4-nitrophenol or phenol [4]