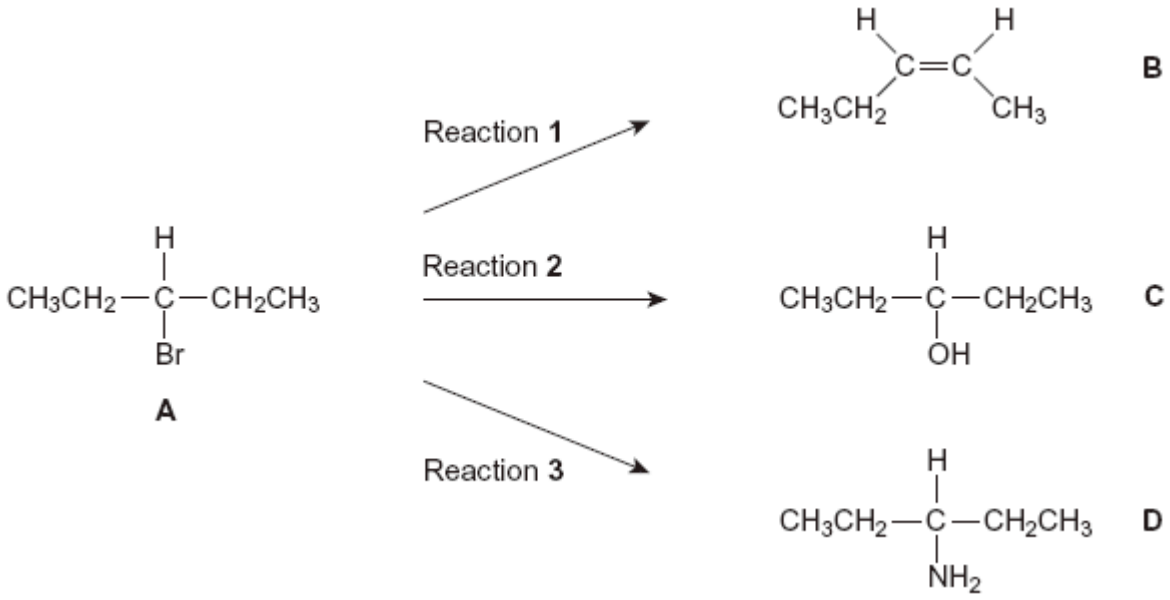
Practice Question Set For A-Level
**Subject : Chemistry**
**Paper-2 Topic: Amines**

Merit Minds
www.merit-minds.com
Exam Preparation and Free Resources

**Name of the Student**:_____
**Max. Marks : 17 Marks** **Time : 17 Minutes**

Q1.

Haloalkanes are useful compounds in synthesis.
Consider the three reactions of the haloalkane **A** shown below.




(a) (i) Draw a **branched-chain** isomer of **A** that exists as optical isomers.

**(1)**

(ii) Name the type of mechanism in Reaction **1**.

_____

**(1)**

(iii) Give the full IUPAC name of compound **B**.

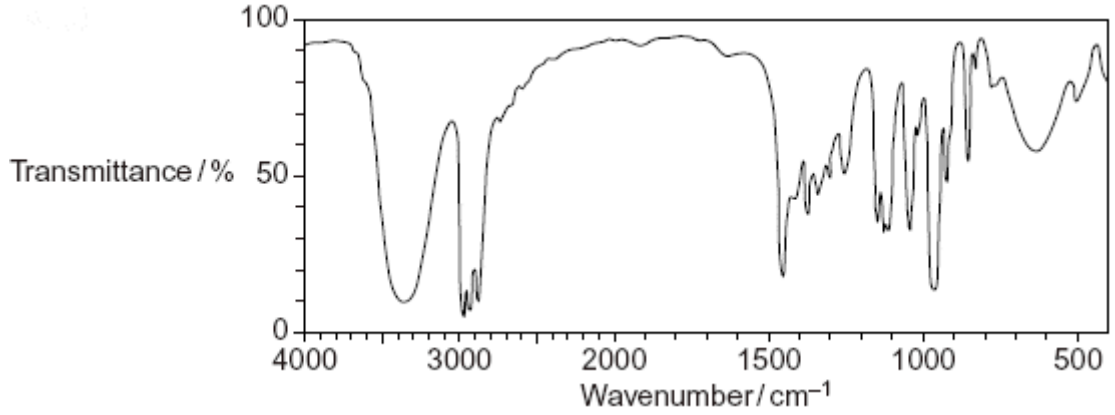
_____

**(1)**

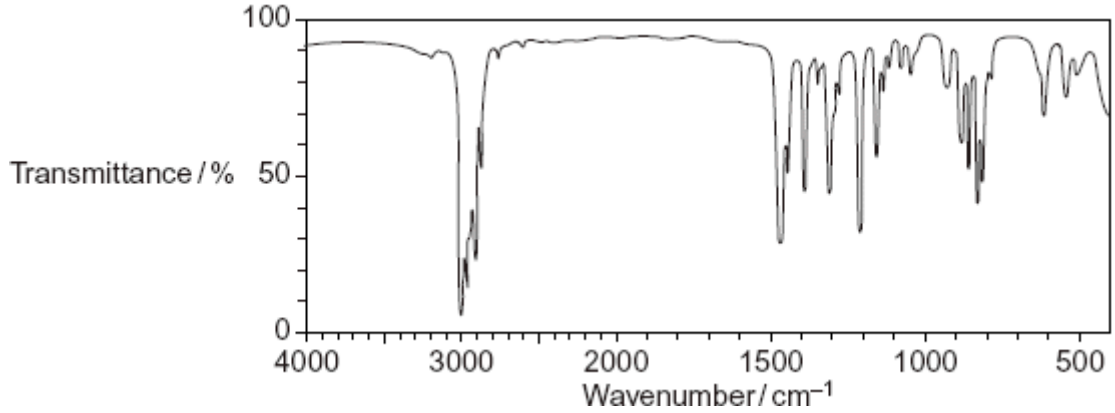
(b) The infrared spectra shown below are those of the four compounds, **A**, **B**, **C** and **D**.
Using **Table 1** on the Data Sheet, write the correct letter in the box next to each spectrum.

(i)

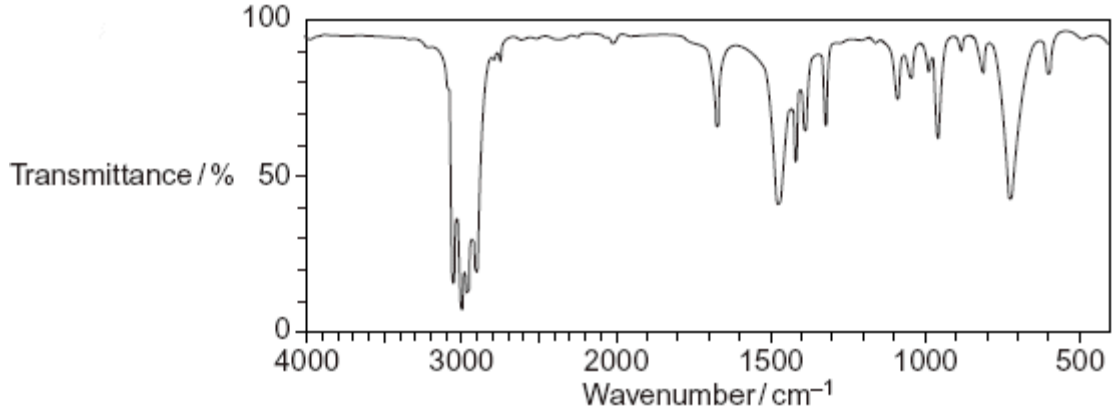
Downloaded from www.merit-minds.com



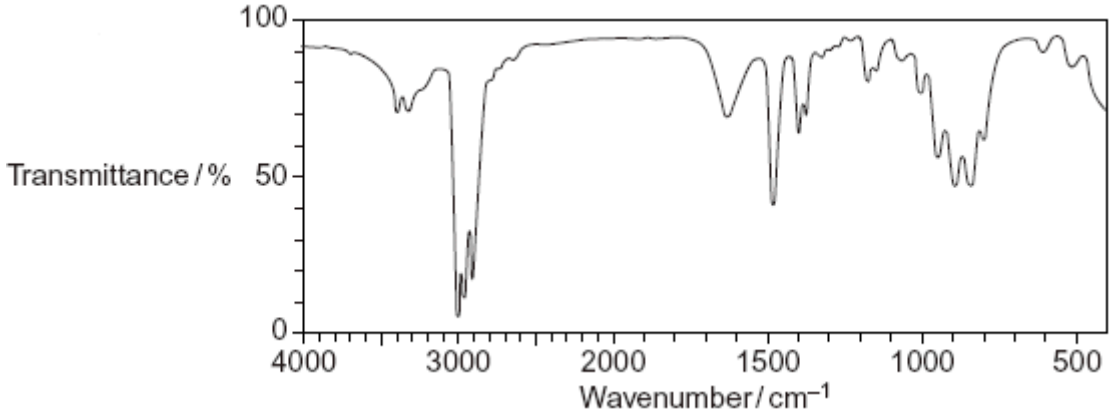

(ii)




(iii)




(iv)




**(4)**

Downloaded from www.merit-minds.com

(c) Draw the repeating unit of the polymer formed by **B** and name the type of polymerisation involved.

Repeating unit

Type of polymerisation _____

**(2)**

(d) (i) Outline a mechanism for Reaction **3**.

**(4)**

(ii) State the conditions used in Reaction **3** to form the maximum amount of the primary amine, **D**.

_____

**(1)**

(iii) Draw the structure of the secondary amine formed as a by-product in Reaction **3**.

**(1)**

(e) **D** is a primary amine which has three peaks in its $^{13}C$ n.m.r. spectrum.

(i) An isomer of **D** is also a primary amine and also has three peaks in its $^{13}C$ n.m.r. spectrum. Draw the structure of this isomer of **D**.

**(1)**

Downloaded from www.merit-minds.com

(ii) Another isomer of **D** is a tertiary amine. Its $^{1}$H n.m.r. spectrum has three peaks. One of the peaks is a doublet. Draw the structure of this isomer of **D**.

**(1)**

**(Total 17 marks)**

Downloaded from www.merit-minds.com