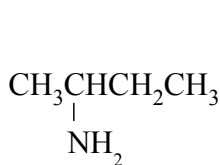


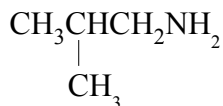
Chemguide – questions

AMINES: INTRODUCTION

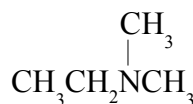
1. a) Classify the following amines as primary, secondary or tertiary:



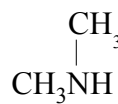
A



B



C



D

- b) Name A and D.
2. This screenshot taken from the Chemguide page shows the boiling points of a number of amines.

type	formula	boiling point (°C)
primary	CH ₃ NH ₂	-6.3
primary	CH ₃ CH ₂ NH ₂	16.6
primary	CH ₃ CH ₂ CH ₂ NH ₂	48.6
secondary	(CH ₃) ₂ NH	7.4
tertiary	(CH ₃) ₃ N	3.5

- a) What intermolecular forces are present in the primary amines?
- b) Considering only the primary amines shown, explain why the boiling points increase as they do.
- c) The secondary amine shown is an isomer of the primary amine, ethylamine (aminoethane). Why is its boiling point slightly less?
- d) The tertiary amine shown is an isomer of the primary amine 1-aminopropane. Why is the boiling point much less?
- e) Why are all the amines in this table soluble in water?
- f) Why does the solubility become less with longer chain lengths?