The basic style is **exam style** which is 12 point Times New Roman, 18 pt spacing, left justified, 0.75 cm tab stops. All the other styles are dependent on this.

The style **bold** is identical to exam style except that the text is in bold. The style **bold 14** is the same, but with 14 pt characters.

The style **hang** is used for indented paragraphs, but is other wise identical to **exam style**. This is what **hang** looks like:

(a) What is the nature of Chemistry? Illustrate your answer with several examples taken from different areas of the subject.

The style **equation** is used for equations, chemical equilibria *etc*. It is like **exam style** exact that the line spacing is not fixed, but will expand automatically to accommodate a taller equation. This style has two tab stops: a centred tab in the middle, which is used to place the equation in the middle of the line, and a right tab at the far right which can be used for equation numbers. The style includes 6 pts of space above and below the equation.

Here is an example of the **equation** style

 [1]

The style **picture** is used for pictures, ChemDraw diagrams *etc*. It is identical to **equation** except that it includes 10 pts of space above and below.

The style **Heading 1** is like **exam style**, but with bold text and 3 pts of space above and below. **Heading 2** is like **exam style**, but with italic text. The page numbers are in style **Page Number** and the footer is in style **Footer**.

Page numbers appear at the top of the page, except on the first page. All odd pages (except page 1) have [TURN OVER at their bottom right hand corner. The page margins are as requested by the Publications Section.

# SECTION A

## I5 Molecules to materials

1

Answer all parts of the question

(a) Why does **A** form a strong 1:1 complex with carboxylic acids (RCOOH) in CHCl3 but not in water?



19

Answer ***both*** parts of the question

(a) Outline the derivation of the following equation for the deflection angle  as a function of the impact parameter *b* and energy ** for classical scattering of a particle by a potential V(*R*):

 [1]

(b) For classical scattering by a potential *V*(*R*) = *c*/*R*2, where *c* > 0 is a constant, use the equation in part (i) to derive expressions for the impact parameter dependence of:

[END OF PAPER]