Question 23 (3 marks)

(a)   Write a balanced chemical equation for the complete combustion of 1-butanol.   **1**

$CH_2OH \ CH_2 \ CH_2 \ CH_3 + O_2 \rightarrow C_4H_{10}O_3$
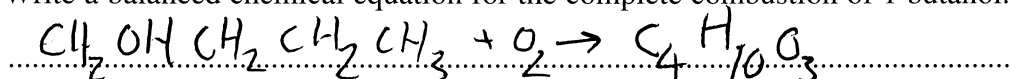
(b)   A student measured the heat of combustion of three different fuels. The results   **2**
       are shown in the table.

Fuel	Heat of combustion (kJ g^{-1})
A	−48
B	−38
C	−28

The published value for the heat of combustion of 1-butanol is 2676 kJ mol-1.

Which fuel from the table is likely to be 1-butanol? Justify your answer.

$C_4H_{10}O$

$48 + 10 + 16$

$= 64$ B

$\frac{m}{mm} = \frac{}{84} = 267.6$