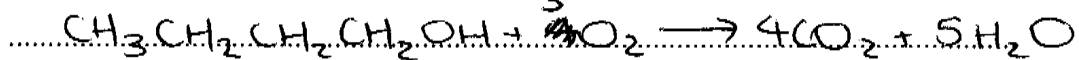
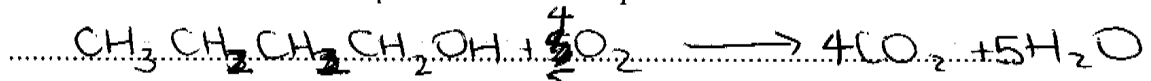


Question 23 (3 marks)

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



- (b) A student measured the heat of combustion of three different fuels. The results 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.

$$\text{M.W.} = (12.01 \times 4 + 1.008 \times 10 + 16)$$

$$= 74.12$$

$$\text{moles} = \frac{m}{\text{M.W.}} \quad \text{-m.C.A.T.}$$

∴ it is most likely to be B

$$\text{as } -2676 \div 74.12$$

$$\therefore -38$$