**Marks
5**

- Glucose is a common food source. The net reaction for its metabolism in humans is:

$$C_6H_{12}O_6(s) + 6O_2(g) \rightarrow 6CO_2(g) + 6H_2O(l)$$
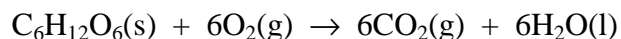
Calculate $\Delta H°$ for this reaction given the following heats of formation.

$\Delta H°_f (C_6H_{12}O_6(s)) = -1274 \text{ kJ mol}^{-1}$, $\Delta H°_f (CO_2(g)) = -393 \text{ kJ mol}^{-1}$ and
$\Delta H°_f (H_2O(l)) = -285 \text{ kJ mol}^{-1}$

Answer:

If the combustion of glucose is carried out in air, water is produced as a vapour. Calculate the $\Delta H°$ for the combustion of glucose in air given that

$$H_2O(l) \rightarrow H_2O(g) \qquad \Delta H° = +44 \text{ kJ mol}^{-1}$$

Answer:

Will ΔS be different for the two oxidation reactions? If so, how will it differ and why?