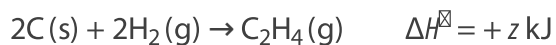


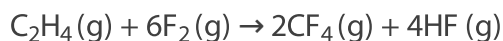
energy cycles [6 marks]

1. [Maximum mark: 1]

Consider the following equations:



What is the $\Delta H^\ominus$ of the reaction?



A. $-x - y - z$

B. $-x - y + z$

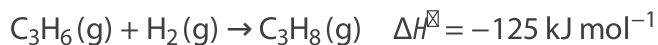
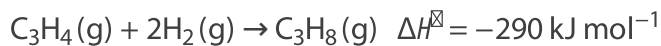
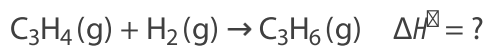
C. $-2x + 2y - z$

D. $-2x - 2y - z$

[1]

2. [Maximum mark: 1]

What is the enthalpy change of reaction, $\Delta H^\ominus$ in kJ mol^{-1} , for the hydrogenation of propyne to propene?



A. $(-290) + (-125)$

B. $(-290) - (-125)$

C. $-(-290) + (-125)$

D. $-(-290) - (-125)$

[1]

3. [Maximum mark: 1]

What is the correct formula for calculating enthalpy change of reaction, $\Delta H^\ominus_{\text{reaction}}$?

A. $\Delta H^\ominus_{\text{reaction}} = \sum \Delta H_f \text{ reactants} - \sum \Delta H_f \text{ products}$

B. $\Delta H^\ominus_{\text{reaction}} = \sum \Delta H_c \text{ products} - \sum \Delta H_c \text{ reactants}$

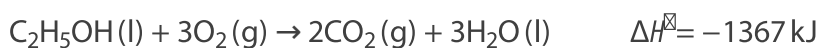
C. $\Delta H^\ominus_{\text{reaction}} = \sum \Delta H_{\text{bonds}} \text{ reactants} - \sum \Delta H_{\text{bonds}} \text{ products}$

D. $\Delta H^\ominus_{\text{reaction}} = \sum \Delta H_{\text{bonds}} \text{ products} - \sum \Delta H_{\text{bonds}} \text{ reactants}$

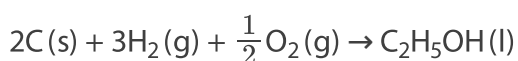
[1]

4. [Maximum mark: 1]

Standard enthalpy changes of reaction are provided for the following reactions.



What is the standard enthalpy change, in kJ, of the following reaction?



A. $(-394 \times 2) - (286 \times 3) - 1367$

B. $(394 \times 2) + (286 \times 3) + 1367$

C. $(394 \times 2) + (286 \times 3) - 1367$

D. $(-394 \times 2) - (286 \times 3) + 1367$

[1]

5. [Maximum mark: 1]

Which compound has the smallest lattice enthalpy?



[1]

6. [Maximum mark: 1]

Which expression represents the calculation used to obtain the $\Delta H^\ominus$ value for the conversion of oxygen to one mole of ozone (O_3)?

		$\Delta H^\ominus, \text{kJ}$
Eqn (i)	$2\text{CO}_2 \rightarrow 2\text{CO} + \text{O}_2$	+566
Eqn (ii)	$3\text{CO} + \text{O}_3 \rightarrow 3\text{CO}_2$	-992

A. $-566 - 922$

B. $-566 + 992$

C. $1.5 \times (-566) + 992$

D. $1.5 \times (-566) - 992$

[1]