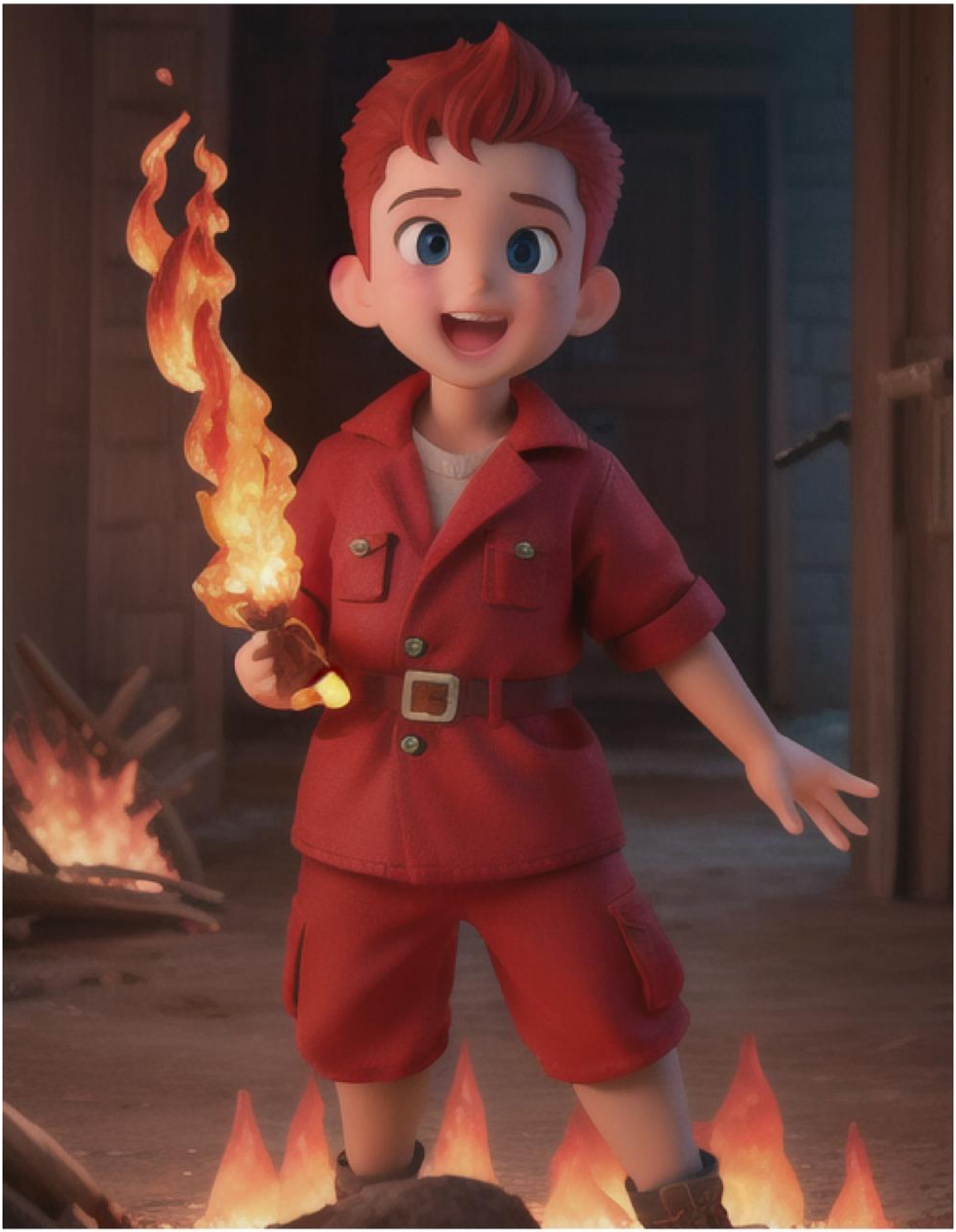
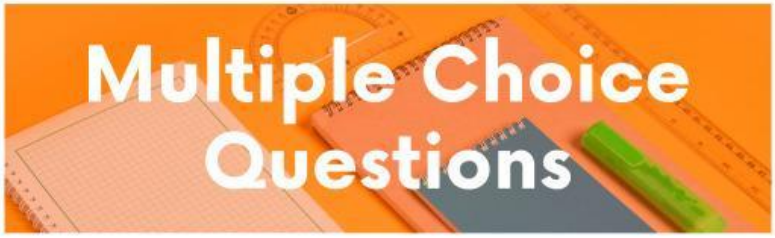


Standard Enthalpy Change



Choose the correct answer.

1. Which statement does not fit with the standard condition?

A. a pressure of 101 kPa

B. normal physical state (solid, liquid or gas) at 101 kPa and 373 K

C. a temperature of 298 K (25 °C)

D. normal physical state (solid, liquid or gas) at 101 kPa and 298 K

2. The term for enthalpy change when the amounts of reactants shown in the stoichiometric equation react to give products under standard conditions is ...

A. enthalpy change of formation

B. enthalpy change of combustion

C. standard enthalpy change of reaction

D. enthalpy change of neutralisation

3. Look at the chemical equation below.

$2H_2(g) + O_2(g) \rightarrow 2H_2O(l)$ $\Delta H_r\ominus = -572$ kJ mol−1

The right statement relate with the chemical equation is ... .

A. It is endothermic reaction.

B. It absorbs energy from the environment.

C. enthalpy of the product is higher than the reactant.

D. It releases energy to the environment.

4. Look at the chemical equation below.

$4Fe(s) + 3O2(g) \rightarrow 2Fe2O3(s)$ $\Delta H f^{\ominus}$ [$Fe2O3(s)$] = −1648.4 kJ mol−1

The right statement relate with the chemical equation is ... .

A. The formation of 1 moles of Fe2O3 is exothermic reaction that releases −824.2kJ mol−1 energy to the surrounding.

B. The formation of 1 moles of Fe2O3 is exothermic reaction that releases −1648.4 kJ mol−1 energy to the surrounding.

C. The formation of 1 moles of Fe2O3 is exothermic reaction that absorb −1648.4 kJ mol−1 energy from the surrounding.

D. The formation of 1 moles of Fe2O3 is endothermic reaction that absorb −1648.4 kJ mol−1 energy from the surrounding.

5. Enthalpy changes of combustion are always ___. The substances combusted can be either elements or compounds.

A. endothermic

B. exothermic

C. positive

D. zero

6. The term of enthalpy change when one mole of water is formed by the reaction of an acid with an alkali under standard conditions is... .

A. standard enthalpy change of reaction

B. standard enthalpy change of formation

C. standard enthalpy change of neutralisation

D. standard enthalpy change of combustion

7. The ionic equation for acid- alkali reaction is ... .

A. $HCl(aq) + NaOH(aq) \rightarrow NaCl(aq) + H2O(l)$

B. $Na^+ + Cl^-$ à NaCl

C. $Na^+ + OH^-$ à NaOH

D. $H^+(aq) + OH^-(aq) \rightarrow H2O(l)$

8. Look at the chemical equations below.

$Fe(s) + O_2(g) \rightarrow FeO(s)$ $\Delta H = -272$ kJ mol–1

$2\,Fe(s) + O_2(g) \rightarrow Fe_2O_3(s)$ $\Delta H = -822$ kJ mol–1

Use the information above to calculate the enthalpy change of the chemical reaction below with the same unit.

$2\,FeO(s) + \frac{1}{2}\,O_2(g) \rightarrow Fe_2O_3(s)$

A. +550

B. –278

C. –1094

D. –1372

9. Look at the chemical equations below.

$C(s) + 2H_2(g) \rightarrow CH_4(g)$ $\Delta H = -75$ kJ mol–1

$H_2(g) \rightarrow 2H(g)$ $\Delta H = +436$ kJ mol–1

Use the information above to calculate the enthalpy change of the chemical reaction below with the same unit.

$CH_4(g) \rightarrow C(s) + 4H(g)$

A. –947

B. – 361

C. +361

D. +947

10. Which equation represents the reaction that has a standard enthalpy change equal to the standard enthalpy of formation for barium chloride?

A. $Ba(g) + Cl_2(g) \rightarrow BaCl_2(s)$

B. $Ba^{2+}(g) + 2Cl^-(g) \rightarrow BaCl_2(s)$

C. $Ba(s) + Cl_2(g) \rightarrow BaCl_2(s)$

D. $Ba^{2+}(s) + 2Cl^-(g) \rightarrow BaCl_2(s)$