

### Question 8

To which of the following reactions occurring at 25 °C does the symbol  $\Delta H_f^\circ [\text{H}_2\text{O}(\text{l})]$  apply?

- A)  $\text{H}_2\text{O}(\text{l}) \rightarrow 2 \text{H}(\text{g}) + \text{O}(\text{g})$
- B)  $2 \text{H}(\text{g}) + \text{O}(\text{g}) \rightarrow \text{H}_2\text{O}(\text{l})$
- C)  $\text{H}_2(\text{l}) + \frac{1}{2} \text{O}_2(\text{l}) \rightarrow \text{H}_2\text{O}(\text{l})$
- D)  $\text{H}_2(\text{g}) + \frac{1}{2} \text{O}_2(\text{g}) \rightarrow \text{H}_2\text{O}(\text{l})$
- E)  $\text{H}_2\text{O}(\text{g}) \rightarrow \text{H}_2\text{O}(\text{l})$

### Question 9

The heat of solution of KCl is 17.2 kJ/mol, and the combined heats of hydration of one mole of gaseous chloride ions and one mole of gaseous potassium ions is -698 kJ. What is the lattice energy of potassium chloride?

- A) -681 kJ/mol
- B) 715 kJ/mol
- C) -715 kJ/mol
- D) -332 kJ/mol
- E) 681 kJ/mol

### Question 10

A certain gas expands in volume from 2.0 L to 24.5 L at constant temperature. Calculate the work done by the gas if it expands against a constant pressure of 5 atm.

- A) -112.5 J
- B)  $1.24 \times 10^4$  J
- C)  $-1.14 \times 10^4$  J
- D) 113 J
- E)  $1.14 \times 10^4$  J