



Class 11 Chemistry | Thermodynamics

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. A system absorbs 120 J heat and does 50 J work. ΔU is:

- A. 170 J B. 70 J C. -170 J D. -70 J

2. For expansion against constant external pressure, work on the system is:

- A. $+P_{ext} \Delta V$ B. Zero in every case
C. $-P_{ext} \Delta V$ D. $P_{ext}/\Delta V$

3. Which is a state function?

- A. Heat B. Path length C. Work D. Enthalpy

4. At constant volume with only PV work, heat equals:

- A. ΔU B. $-\Delta U$ C. $T\Delta S$ always D. ΔH always

5. For an ideal-gas reaction, $\Delta H - \Delta U$ equals:

- A. $-\Delta n_g RT$ B. $RT/\Delta n_g$ C. $\Delta n_g RT$ D. Zero always

6. For $N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$, Δn_g is:

- A. -2 B. -1 C. +1 D. +2

7. Standard formation enthalpy of $O_2(g)$ in its reference state is:

- A. 0 B. 1 kJ mol^{-1}
C. Always positive D. -1 kJ mol^{-1}

8. If $A \rightarrow B$ has $\Delta H = -40 \text{ kJ}$, then $B \rightarrow A$ has ΔH :

- A. 0 B. $+40 \text{ kJ}$ C. -40 kJ D. $+80 \text{ kJ}$

9. $A \rightarrow B$: $+25 \text{ kJ}$; $B \rightarrow C$: -70 kJ . $A \rightarrow C$ is:

- A. $+45 \text{ kJ}$ B. -95 kJ C. -45 kJ D. $+95 \text{ kJ}$

10. Which process usually increases entropy?

- A. Condensing steam B. Crystallising a salt
C. Freezing water D. Melting ice

11. At constant T, P a spontaneous change has:

- A. $\Delta G > 0$ B. $\Delta G < 0$
C. $\Delta G = 0$ always D. $\Delta S_{\text{system}} < 0$ always

12. For $\Delta H = -20 \text{ kJ}$ and $\Delta S = -50 \text{ J K}^{-1}$, ΔG at 300 K is:

- A. -35 kJ B. $+35 \text{ kJ}$ C. -5 kJ D. $+5 \text{ kJ}$

13. A reaction with $\Delta H > 0$ and $\Delta S > 0$ is favoured at:

- A. No temperature
B. Low temperature only
C. High temperature
D. All temperatures

14. For a reversible isothermal process, entropy change is:

- A. q_{rev}/T B. $-q_{rev}/T$ always C. T/q_{rev} D. q_{rev}/T

15. If a reaction has $\Delta G^\circ = 0$, its equilibrium constant is:

- A. 10 B. Infinity C. 0 D. 1

ANSWER KEY — check after completing all 15 questions

1.B 2.C 3.D 4.A 5.C 6.A 7.A 8.B 9.C 10.D 11.B 12.C 13.C 14.D 15.D

Original exam-style practice • Reference notes: www.physics.guru/cbse-practice-papers/ • Not an official paper