

NEET THERMODYNAMICS — HESS'S LAW OF CONSTANT HEAT SUMMATION — PYQS

Max. Marks: 28
Questions: 7

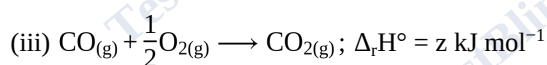
Section A (MCQ) — 7 questions

- Q.1** The standard heat of formation, in kcal/mol of Ba^{2+} is : [Given : standard heat of formation of SO_4^{2-} ion (aq) = -216 kcal/mol, standard heat of crystallisation of $\text{BaSO}_4(\text{s}) = -4.5$ kcal/mol, standard heat of formation of $\text{BaSO}_4(\text{s}) = -349$ kcal/mol] [NEET (UG) 2025]
- (1) $+133.0$ (2) $+220.5$ (3) -128.5 (4) -133.0

Scan or tap for the full solution



- Q.2** Three thermochemical equations are given below
- (i) $\text{C}_{(\text{graphite})} + \text{O}_{2(\text{g})} \longrightarrow \text{CO}_{2(\text{g})}$; $\Delta_r H^\circ = x \text{ kJ mol}^{-1}$
- (ii) $\text{C}_{(\text{graphite})} + \frac{1}{2}\text{O}_{2(\text{g})} \longrightarrow \text{CO}_{(\text{g})}$; $\Delta_r H^\circ = y \text{ kJ mol}^{-1}$



Based on the above equations, find out which of the relationship given below is correct.

[NEET 2013 (Karnataka)]

- (1) $z = x + y$ (2) $x = y + z$
 (3) $y = 2z - x$ (4) $x = y - z$

Scan or tap for the full solution



- Q.3** Consider the following processes :

	$\Delta H \text{ (kJ/mol)}$
$\frac{1}{2}\text{A} \longrightarrow \text{B}$	$+150$
$3\text{B} \longrightarrow 2\text{C} + \text{D}$	-125
$\text{E} + \text{A} \longrightarrow 2\text{D}$	$+350$

For $\text{B} + \text{D} \longrightarrow \text{E} + 2\text{C}$, ΔH will be

[AIPMT 2011 (Mains)]

- (1) 525 kJ/mol (2) -175 kJ/mol
 (3) -325 kJ/mol (4) 325 kJ/mol

Scan or tap for the full solution



- Q.4** The following two reactions are known
- $$\text{Fe}_2\text{O}_{3(\text{s})} + 3\text{CO}_{(\text{g})} \longrightarrow 2\text{Fe}_{(\text{s})} + 3\text{CO}_{2(\text{g})}; \Delta H = -26.8 \text{ kJ}$$
- $$\text{FeO}_{(\text{s})} + \text{CO}_{(\text{g})} \longrightarrow \text{Fe}_{(\text{s})} + \text{CO}_{2(\text{g})}; \Delta H = -16.5 \text{ kJ}$$
- The value of ΔH for the following reaction
- $$\text{Fe}_2\text{O}_{3(\text{s})} + \text{CO}_{(\text{g})} \longrightarrow 2\text{FeO}_{(\text{s})} + \text{CO}_{2(\text{g})}$$
- [AIPMT 2010 (Mains)]
- (1) $+10.3 \text{ kJ}$ (2) -43.3 kJ (3) -10.3 kJ (4) $+6.2 \text{ kJ}$

Scan or tap for the full solution



- Q.5** Heat of combustion ΔH° for $\text{C}_{(\text{s})}$, $\text{H}_{2(\text{g})}$ and $\text{CH}_{4(\text{g})}$ are -94 , -68 and -213 kcal/mol , then ΔH° for $\text{C}_{(\text{s})} + 2\text{H}_{2(\text{g})} \longrightarrow \text{CH}_{4(\text{g})}$ is [AIPMT 2002]
- (1) -17 kcal (2) -111 kcal
 (3) -170 kcal (4) -85 kcal

Scan or tap for the full solution



- Q.6** Enthalpy of $\text{CH}_4 + \frac{1}{2}\text{O}_2 \longrightarrow \text{CH}_3\text{OH}$ is negative. If enthalpy of combustion of CH_4 and CH_3OH are x and y respectively. Then which relation is correct? [AIPMT 2001]
- (1) $x > y$ (2) $x < y$ (3) $x = y$ (4) $x \geq y$

Scan or tap for the full solution



- Q.7** $2\text{Zn} + \text{O}_2 \longrightarrow 2\text{ZnO}$; $\Delta G^\circ = -616 \text{ J}$
 $2\text{Zn} + \text{S}_2 \longrightarrow 2\text{ZnS}$; $\Delta G^\circ = -293 \text{ J}$
 $\text{S}_2 + 2\text{O}_2 \longrightarrow 2\text{SO}_2$; $\Delta G^\circ = -408 \text{ J}$
 ΔG° for the following reaction
 $2\text{ZnS} + 3\text{O}_2 \longrightarrow 2\text{ZnO} + 2\text{SO}_2$ is [AIPMT 2000]
- (1) -731 J (2) -1317 J (3) -501 J (4) $+731 \text{ J}$

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3	4	5	6	7			
Ans.	3	2	2	4	1	2	1			