

Yakeen NEET 2.0 2026

Physical Chemistry By Amit Mahajan Sir

Thermodynamics & Thermochemistry

DPP: 5

- Q1** The heat of combustion of ethanol determined in a bomb calorimeter is $-670.48 \text{ K. Cals mole}^{-1}$ at 25°C .
What is ΔH at 25°C for the reaction:
(A) -335.24 K. Cals.
(B) -671.08 K. Cals.
(C) -670.48 K. Cals.
(D) $+670.48 \text{ K. Cals.}$
- Q2** From the reaction $\text{P(White)} \rightarrow \text{P(Red)}$;
 $\Delta H = -18.4 \text{ KJ}$. It follows that:-
(A) Red P is readily formed from white P
(B) White P is readily formed from red P
(C) White P can not be converted to red P
(D) White P can be converted into red P and red P is more stable
- Q3** Since the enthalpy of the elements in their standard states is taken to be zero. The heat of formation (ΔH_f) of compounds:
(A) Is always negative
(B) Is always positive
(C) Is zero
(D) May be positive or negative
- Q4** Which of the following equations represents standard heat of formation of CH_4 ?
(A) $\text{C}_{(\text{diamond})} + 2\text{H}_2(\text{g}) \rightarrow \text{CH}_4(\text{g})$
(B) $\text{C}_{(\text{graphite})} + 2\text{H}_2(\text{g}) \rightarrow \text{CH}_4(\text{g})$
(C) $\text{C}_{(\text{diamond})} + 4\text{H}_2(\text{g}) \rightarrow \text{CH}_4(\text{g})$
(D) $\text{C}_{(\text{graphite})} + 4\text{H}_2(\text{g}) \rightarrow \text{CH}_4(\text{g})$
- Q5** Given enthalpy of formation of $\text{CO}_2(\text{g})$ and CaO(s) are -94.0 kJ and -152 kJ respectively and the enthalpy of the reaction:
 $\text{CaCO}_3(\text{s}) \rightarrow \text{CaO(s)} + \text{CO}_2(\text{g})$ is 42 kJ .
The enthalpy of formation of $\text{CaCO}_3(\text{s})$ is:
(A) -42 kJ
(B) -202 kJ
(C) $+202 \text{ kJ}$
(D) -288 kJ
- Q6** The enthalpies of combustion of carbon and carbon monoxide are -393.5 KJ and -283 KJ , respectively the enthalpy of formation of carbon monoxide is
(A) -676.5 KJ
(B) -110.5 KJ
(C) 110.5 KJ
(D) 676.5 KJ
- Q7** The heat of combustion of $\text{CH}_4(\text{g})$, $\text{C}_{(\text{s})}$ and $\text{H}_2(\text{g})$ at 25°C are -212.4 Kcal , -94.0 Kcal and -68.4 Kcal respectively, the heat of formation of CH_4 will be-
(A) $+54.4 \text{ Kcal}$
(B) -18.4 Kcal
(C) -375.2 Kcal
(D) $+212.8 \text{ Kcal}$
- Q8** Standard enthalpy of formation is zero for
(A) $\text{C}_{\text{diamond}}$
(B) Br(g)
(C) $\text{C}_{\text{graphite}}$
(D) $\text{O}_{3(\text{g})}$
- Q9** Heat of formation of CO_2 is -94.0 K. cal . What would be the quantity of heat liberated, when 3 g of graphite is burnt in excess of oxygen:-
(A) 23.5 K cal
(B) 2.35 K cal
(C) 94.0 K cal
(D) 31.3 K cal
- Q10** The heat of neutralization of HCl by NaOH is -55.9 kJ/mol . If the heat of neutralization of



HCN by NaOH is -12.1 kJ/mol . The energy of dissociation of HCN is

- (A) -43.8 kJ
- (B) 43.8 kJ
- (C) 68 kJ
- (D) -68 kJ

Q11 Heat evolved in the reaction

$\text{H}_2 + \text{Cl}_2 \rightarrow 2\text{HCl}$ is 182 kJ . Bond energies of $\text{H}-\text{H}$ and $\text{Cl}-\text{Cl}$ are 430 and 242 kJ/mol respectively. The $\text{H}-\text{Cl}$ bond energy is:

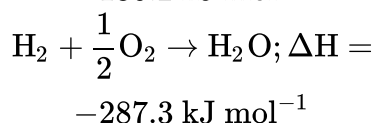
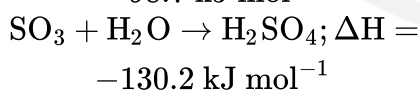
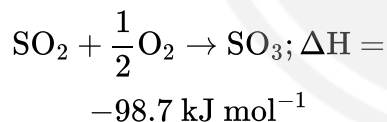
- (A) 245 kJ mol^{-1}
- (B) 427 kJ mol^{-1}
- (C) 336 kJ mol^{-1}
- (D) 154 kJ mol^{-1}

Q12 Heat of dissociation of benzene to elements is

5535 kJ mol^{-1} . The bond enthalpies of $\text{C}-\text{C}$, $\text{C}=\text{C}$ and $\text{C}-\text{H}$ are 347.3 , 615.0 and $416.2 \text{ kJ mol}^{-1}$ respectively. Resonance energy of benzene is

- (A) 1.51 kJ mol^{-1}
- (B) 15.1 kJ mol^{-1}
- (C) 151 kJ mol^{-1}
- (D) 1511 kJ mol^{-1}

Q13 If $\text{S} + \text{O}_2 \rightarrow \text{SO}_2$; $\Delta H = -298.2 \text{ kJ mol}^{-1}$

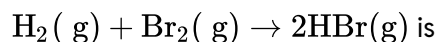


Then the enthalpy of formation of H_2SO_4 at 298 K will be-

- (A) $-814.4 \text{ kJ mol}^{-1}$
- (B) $-650.3 \text{ kJ mol}^{-1}$
- (C) $-320.5 \text{ kJ mol}^{-1}$
- (D) $-433.5 \text{ kJ mol}^{-1}$

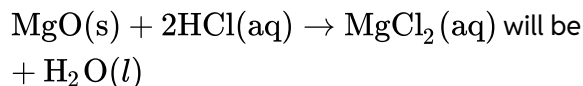
Q14 If the bond energies of $\text{H}-\text{H}$, $\text{Br}-\text{Br}$ and $\text{H}-\text{Br}$ are 433 , 192 and 364 kJ mol^{-1}

respectively, then ΔH° for the reaction



- (A) -261 kJ
- (B) $+103 \text{ kJ}$
- (C) $+261 \text{ kJ}$
- (D) -103 kJ

Q15 The absolute enthalpy of neutralisation of the reaction,



- (A) Less than $-57.33 \text{ kJ mol}^{-1}$
- (B) $-57.33 \text{ kJ mol}^{-1}$
- (C) Greater than $-57.33 \text{ kJ mol}^{-1}$
- (D) $57.33 \text{ kJ mol}^{-1}$



Answer Key

Q1 (B)
Q2 (D)
Q3 (D)
Q4 (B)
Q5 (D)
Q6 (B)
Q7 (B)
Q8 (C)

Q9 (A)
Q10 (B)
Q11 (B)
Q12 (C)
Q13 (A)
Q14 (D)
Q15 (A)



[Master NCERT with PW Books APP](#)