Yakeen NEET 2.0 2026

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Thermodynamics & Thermochemistry

DPP: 6

Q1 0.16 g of methane was subjected to combustion at $27^{\circ}\mathrm{C}$ in a bomb calorimeter system. The temperature of the calorimeter system (including water) was found to rise by $0.5^{\circ}\mathrm{C}$. Heat of combustion of methane at constant pressure is(Heat capacity of the calorimeter system is $17.7\ \mathrm{kJ\ K^{-1}}$).

(A) $-890\ \mathrm{kJ}$

(B) $-885\ \mathrm{kJ}$

(C) $+890\ \mathrm{kJ}$

(D) $+885\ \mathrm{kJ}$

Q2 Standard enthalpy of formation is zero for

(A) $\mathrm{C_{diamond}}$

(B) $\mathrm{Br(g)}$

(C) C_{graphite}

(D) $\mathrm{O_{3(g)}}$

Q3 18 g of water is taken to prepare the tea. Find out the internal energy of vaporization at $100^{\circ}\mathrm{C}$ ($\Delta_{\text{vap}}\,\mathrm{H}$ for water at $373\ \mathrm{K}$ is $40.66\ \mathrm{kJ\ mol^{-1}}$)

(A) $37.56\ \mathrm{kJ\ mol^{-1}}$

(B) $-37.56\ \mathrm{kJ\ mol^{-1}}$

(C) $43.73\ \mathrm{kJ\ mol^{-1}}$

(D) $-43.76\ \mathrm{kJ\ mol^{-1}}$

Q4 When 0.5 g of sulphur is burnt to $\mathrm{SO_2}$, $4.6\ \mathrm{kJ}$ of heat is liberated. What is the enthalpy of formation of Sulphur dioxide.

(A) $+147.2\ \mathrm{kJ}$

(B) $-147\ \mathrm{kJ}$

(C) $-294.4\ \mathrm{kJ}$

(D) $+294.4\ \mathrm{kJ}$

Q5 The enthalpy change for the reaction, $\mathrm{H_2O(s) \rightarrow H_2O(\ell)}$ is called

(A) Enthalpy of formation

(B) Enthalpy of fusion

(C) Enthalpy of vaporisation

(D) Enthalpy of transition

Q6 The $\Delta\mathrm{H}^{\circ}$ for the reaction, $4\ \mathrm{S(\ s) + 6O_2(\ g) \rightarrow 4SO_3(\ g)}$ is - $1583.2\ \mathrm{kJ}$. Standard enthalpy of formation of sulphur trioxide is:

(A) $-3166.4\ \mathrm{kJ}$

(B) $3166.4\ \mathrm{kJ}$

(C) $-395.8\ \mathrm{kJ}$

(D) $395.8\ \mathrm{kJ}$

Q7 Bond dissociation enthalpy is used to defining enthalpy change of a reaction as

(A) $\Delta \mathrm{H_r} = \Sigma(\text{Bond dissociation enthalpy})_{\text{Reactant}} - \Sigma(\text{Bond dissociation enthalpy})_{\text{Product}}$

(B) $\Delta \mathrm{H_r} = \Sigma(\text{Bond dissociation enthalpy})_{\text{Product}} - \Sigma(\text{Bond dissociation enthalpy})_{\text{Reactant}}$

(C) $\Delta \mathrm{H_r} = \Sigma(\text{Bond dissociation enthalpy})_{\text{Product}} + \Sigma(\text{Bond dissociation enthalpy})_{\text{Reactant}}$

(D) None of these

Q8 The heat released in neutralization of HCl and NaOH is $13.7\mathrm{kcal/mol}$, the heat released on neutralization of NaOH with $\mathrm{CH_3COOH}$ is $3.7\ \mathrm{kcal/mol}$. The $\Delta\mathrm{H}^{\circ}$ of ionization of $\mathrm{CH_3OOOH}$ is

(A) $10.2\mathrm{kcal}$

(B) 10kcal
(C) 3.7kcal
(D) 9.5kcal

Q9 Heat of neutralization of strong acid by a strong base is equal to ΔH of
(A) $H^+ + OH^- \longrightarrow H_2O$
(B) $H_2O + H^+ \longrightarrow H_3O^+$
(C) $2H_2 + O_2 \longrightarrow 2H_2O$
(D) $NH_4OH + HCl \longrightarrow NH_4Cl + H_2O$

Q10 The Enthalpy of neutralization of acetic acid and sodium hydroxide is $-55.4\ \text{kJ}$. What is the enthalpy of ionisation of acetic acid?
(A) $-5.54\ \text{kJ}$
(B) $+5.54\ \text{kJ}$
(C) $+1.9\ \text{kJ}$
(D) $-1.9\ \text{kJ}$

Q11 Which of the following acid has the lowest value (magnitude) of heat neutralization?
(A) CH_3COOH
(B) HCl
(C) HBr
(D) HI

Q12 The enthalpy of neutralization of any strong acid and strong base is nearly equal to
(A) $+57.3\ \text{kJ/mol}$
(B) $-75.3\ \text{kJ/mol}$
(C) $+75.3\ \text{kJ/mol}$
(D) $-57.3\ \text{kJ/eq}$

Answer Key

Q1	(A)
Q2	(C)
Q3	(A)
Q4	(C)
Q5	(B)
Q6	(C)
Q7	(A)
Q8	(B)
Q9	(A)
Q10	(C)
Q11	(A)
Q12	(D)