Date Planned : __ / __ / __	Daily Tutorial Sheet-8	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level-2	Exact Duration :_____

96. If $SO_2 + \frac{1}{2}O_2 \longrightarrow SO_3$ $\Delta H = -98.7\,kJ$

$SO_3 + H_2O \longrightarrow H_2SO_4$ $\Delta H = -130.2\,kJ$

$H_2 + \frac{1}{2}O_2 \longrightarrow H_2O$ $\Delta H = -287.3\,kJ$

$S + H_2 + 2O_2 \longrightarrow H_2SO_4$ $\Delta H = -814.4\,kJ$

Then enthalpy of formation of SO_2 at 298 K is :

(A) –298.2 kJ **(B)** –650.3 kJ **(C)** –320.5 kJ **(D)** –233.5 kJ

97. If $H_2(g) \rightleftharpoons 2H(g)$ $\Delta H = 104$ kcals

Then heat of atomization of H_2 is :

(A) 52 kcals **(B)** 104 kcals **(C)** 20 kcals **(D)** None of the above

98. The heats of neutralization of four acids A, B, C, D are – 13.7, – 9.4, – 11.2 and – 12.4 kcal respectively when they are neutralized by a common base. The acidic character obeys the order.

(A) A > B > C > D **(B)** A > D > C > B

(C) D > C > B > A **(D)** D > B > C > A

99. A person requires 2870 kcal of energy to lead normal daily life. If heat of combustion of cane sugar is – 1349 kcal, then his daily consumption of sugar is :

(A) 728 g **(B)** 0.728 g

(C) 342 g **(D)** 0.342 g

100. 2.1 g of Fe combines with S evolving 3.77 kJ. The heat of formation of FeS in kJ/mole is

(A) –3.77 **(B)** –1.79

(C) –100.5 **(D)** None of these

101. In which case of mixing of a strong acid and a base each of 1 N concentration, temperature increase is highest in

(A) 20 mL acid – 30 mL alkali **(B)** 10 mL acid – 40 mL alkali

(C) 25 mL acid – 25 mL alkali **(D)** 35 mL acid – 15 mL alkali

***102.** The enthalpy of formation of UF(g) is 22 kcal mol^{-1} and that U(g) is 128 kcal mol^{-1}. The bond energy of the F – F bond is 37.0 kcal mol^{-1}. The bond dissociation energy of UF(g) is/are

(A) 124.5 kcal mol^{-1} **(B)** 131.1 kcal mol^{-1}

(C) 521 kJ mol^{-1} **(D)** 623 kJ mol^{-1}

103. Heat of neutralization between HCl and NaOH is – 13.7 kcal $equiv^{-1}$. Heat of neutralization of $H_2C_2O_4$ (oxalic acid) with NaOH is – 26 kcal mol^{-1}. Hence, heat of dissociation of $H_2C_2O_4$ as $H_2C_2O_4 \rightleftharpoons 2H^+ + C_2O_4^{2-}$, is :

(A) 12.3 kcals $mole^{-1}$ **(B)** 1.4 kcals $mole^{-1}$

(C) –39.7 kcals $mole^{-1}$ **(D)** –12.3 kcals $mole^{-1}$

***104.** In the reaction $2H_2(g) + O_2(g) \longrightarrow 2H_2O(\ell)$, $\Delta H = -x\,kJ$

(A) x kJ is the heat of formation of H_2O **(B)** $-x$ kJ is the heat of reaction

(C) x kJ is the heat of combustion of H_2 **(D)** $-\frac{x}{2}$ kJ is the heat of formation of H_2O

105. How much heat is required to change 10 g ice at 0°C to steam at 100°C? Latent heat of fusion and vapour for H_2O are 80 cal/g and 540 cal/g respectively. Specific heat of water is 1 cal/g.

(A) 7290 Cal **(B)** 5400 Cal

(C) 7200 Cal **(D)** 8100 Cal