Date Planned : __ / __ / __	Daily Tutorial Sheet-7	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level-2	Exact Duration :_____

86. The enthalpy of solution of NaCl is $4\,kJ/mol$ and its enthalpy of hydration of its ions is $-784\,kJ/mol$. Calculate the lattice enthalpy of NaCl in kJ/mol.

(A) $+788$ **(B)** $+4$ **(C)** $+398$ **(D)** $+780$

87. A child bought a balloon which became very small in size the next day. Which is correct statement about balloon?

(A) It is isolated system **(B)** It is an open system

(C) It is a closed system **(D)** It exchanges only energy with the surrounding

88. At 5×10^5 bar pressure, density of diamond and graphite are 3 g/cc and 2 g/cc respectively, at certain temperature 'T'. Find the value of $\Delta U-\Delta H$ for the conversion of 1 mole of graphite to 1 mole of diamond at temperature 'T':

(A) 100 kJ/mol **(B)** 50 kJ/mol **(C)** -100 kJ/mol **(D)** None of these

89. The Δ_rH^o (enthalpy of formation) is positive in :

(A) $O_3(g)$ **(B)** NO(g) **(C)** HI(g) **(D)** All of these

90. The enthalpies of neutralization of a weak base AOH and a strong base BOH by HCl are -12250 cal/mol and -13000 cal/mol respectively. When one mole of HCl is added to a solution containing 1 mole of AOH and 1 mole of BOH, the enthalpy change was -12500 cal/mol. In what ratio is the acid distribution between AOH and BOH?

(A) 2 : 1 **(B)** 2 : 3 **(C)** 1 : 2 **(D)** None of these

91. What is bond enthalpy of Xe – F bond?

$$XeF_4(g)\longrightarrow Xe^+(g)+F^-(g)+F_2(g)+F(g);\ \Delta_rH=292\ kcal/mol$$

Given data in kcal/mol : Ionization energy of Xe = 279; B.E. (F – F) = 38 ; Electron affinity of F = 85.

(A) 24 kcal/mol **(B)** 34 kcal/mol **(C)** 8.5 kcal/mol **(D)** None of these

***92.** One gram-atom of graphite and one gram-atom of diamond were separately burnt to form CO_2. The heat liberated were 393.5 kJ and 395.4 kJ respectively. It follows that:

(A) graphite has greater affinity for oxygen **(B)** diamond has greater affinity for oxygen

(C) graphite is more stable than diamond **(D)** diamond is more stable than graphite

93. Resonance energy of benzene is 36 kcal mol^{-1}. This means

(A) The heat of hydrogenation of benzene is 36 kcal

(B) The heat of formation of benzene is 36 kcal

(C) The experimental heat of formation of benzene is 36 kcal less than that of hypothetical model

(D) None is correct

***94.** Which of the following molecules will have different values of standard molar enthalpy of formation, one calculated using bond energies and other calculated calorimetrically?

(A) $C_2H_6(g)$ **(B)** 1, 3-butadiene

(C) 1, 3-cyclohexadiene **(D)** N_2O

95. Calculate heat of formation of isoprene using bond energy data.

$$5C(s) + 4H_2(g) \longrightarrow H_2C = \underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}} - HC = CH_2$$

Given C – H = 98.8 kcal

H – H = 104 kcal

C – C= 83 kcal

C = C = 147 kcal and $C(s) \longrightarrow C(g) = 171\,kcal$

(A) 29 Kcal **(B)** 14.7 Kcal **(C)** 20.6 Kcal **(D)** 18.6 Kcal