Date Planned : __ / __ / __	Daily Tutorial Sheet-11	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Numerical Value Type	Exact Duration :_____

126. The magnitude of the difference between heat of reaction at constant pressure and constant volume for the reaction given below at 25°C in kJ is :

$2C_6H_6(\ell) + 15O_2(g) \longrightarrow 12CO_2(g) + 6H_2O(\ell)$

127. The temperature of a 5 mL of strong acid increases by 5°C when 5 mL of a strong base is added to it. If 10 mL of each are mixed, temperature increase in deg celcius is :

128. Energy required to dissociate 4 g of gaseous hydrogen into free gaseous atoms is 208 kcal at 25°C. The bond energy of $H-H$ bond in kcal is :

129. The value of $\Delta H°$ for the reaction $Cu^+(g) + I^-(g) \longrightarrow CuI(g)$ is $-446\,kJ\,mol^{-1}$. If the ionisation energy of $Cu(g)$ is $745\,kJ\,mol^{-1}$ and electron gain enthalpy $I(g)$ is $295\,kJ\,mol^{-1}$, then the magnitude of $\Delta H°$ for the formation of one mole of $CuI(g)$ from $Cu(g)$ and $I(g)$ is_____ kJ.

130. The standard heat for formation of $NO_2(g)$ and $N_2O_4(g)$ are 8.0 and $2.0\,kcal\,mol^{-1}$ respectively. The magnitude of heat of dimerization of NO_2 in kcal is :

131. AB, A_2 and B_2 are diatomic molecules. If the bond enthalpies of A_2, AB and B_2 are in the ratio $1:1:0.5$ and the enthalpy of formation of AB from A_2 and B_2 is $-100\,kJ\,mol^{-1}$, what is the bond enthalpy of A_2 in kJ ?

132. Bond energies of $(H-H), (O=O)$ and $(O-H)$ are 105, 120 and 220 kcal/mol respectively, then magnitude of ΔH in the reaction in kcal is :

$2H_2(g) + O_2(g) \longrightarrow 2H_2O(\ell)$

133. If, combustion of 4 g of CH_4 liberates 2.5 kcal of heat, the magnitude of heat of combustion of CH_4 in kcal is :

134. If $H_2(g) + Cl_2(g) \longrightarrow 2HCl;\quad \Delta H° = -44\,kcal$ ..... (i)

$2Na(s) + 2HCl(g) \longrightarrow 2NaCl(s) + H_2(g);\quad \Delta H = -152\,kcal$ ..... (ii)

$Na(s) + 0.5Cl_2(g) \longrightarrow NaCl(s);\quad \Delta H° = -x\,kcal$ ..... (iii)

Magnitude of x is_____.

135. Heat of combustion ΔH for $C(s), H_2(g)$ and $CH_4(g)$ are $-94, -68$ and -213 kcal/mole then magnitude of ΔH for $C(s) + 2H_2(g) \longrightarrow CH_4(g)$ in kcal is :

136. Given the bond energies of $N \equiv N$, $H-H$ and $N-H$ bonds as 948, 436 and $391\,kJ\,mol^{-1}$ respectively, the magnitude of enthalpy of the reaction, $N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$ in kJ is :

137. Heat evolved in the reaction, $H_2 + Cl_2 \longrightarrow 2HCl$ is 182 kJ. Bond energies of $H-H$ an $Cl-Cl$ are 430 and 242 kJ/mole respectively. The $H-Cl$ bond energy in kJ/mole is :

138. The heat of neutralization of a strong base and a strong acid is 57 kJ/mol. The magnitude of heat released when 0.5 mole of HNO_3 solution is added to 0.20 mole of NaOH solution, in kJ is :

139. For the reaction, $X_2O_4(\ell) \longrightarrow 2XO_2(g)$

$\Delta U = 2.1\,kcal$, $\Delta S = 20\,cal\,K^{-1}$ at 300 K

Hence, magnitude of ΔG is in kcal is :

140. The heat of combustion of carbon to CO_2 is $-393.5\,kJ/mol$. The magnitude of heat released upon formation of 35.2 g of CO_2 from carbon and oxygen gas in kJ.