






Date Planned : __ / __ / __	Daily Tutorial Sheet-13	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level-3	Exact Duration : _____

147. The enthalpy of formation of hypothetical  $\text{MgCl}$  is  $-125\text{kJ mol}^{-1}$  and for  $\text{MgCl}_2$  is  $-642\text{kJ mol}^{-1}$ . What is enthalpy for the disproportionation of  $\text{MgCl}$ ? 
- (A)  $392\text{kJ mol}^{-1}$  (B)  $-392\text{kJ mol}^{-1}$   
(C)  $-767\text{kJ mol}^{-1}$  (D)  $-517\text{kJ mol}^{-1}$
148. At 298 K in a constant volume calorimeter, 0.01 mole of TNT was detonated when 8180 cal of heat was released. Each mole of TNT gives 6 moles of gaseous products on detonation. What is  $\Delta H/\text{mole}$  of TNT exploded? 
- (A)  $-714\text{ kcal mol}^{-1}$  (B)  $-814\text{ kcal mol}^{-1}$   
(C)  $-914\text{ kcal mol}^{-1}$  (D) None of the above
149. The difference between heat of reaction at constant pressure and constant volume for the reaction given below at  $25^\circ\text{C}$  in kJ is 
- $$2\text{C}_6\text{H}_6(\ell) + 15\text{O}_2(\text{g}) \longrightarrow 12\text{CO}_2(\text{g}) + 6\text{H}_2\text{O}(\ell)$$
- (A)  $-7.43$  (B)  $+3.72$   
(C)  $-3.72$  (D)  $7.43$
150.  $\Delta_f H^\circ$  of Cyclohexane ( $\ell$ ) and benzene at  $25^\circ\text{C}$  is  $-156$  and  $+46\text{kJ mol}^{-1}$ , respectively.  $\Delta_{\text{Hydrogenation}} H^\circ$  of cyclohexene ( $\ell$ ) at  $25^\circ\text{C}$  is  $-119\text{kJ mol}^{-1}$  
- Resonance energy of benzene is found to be  $-38\text{ x kJ mol}^{-1}$ . Find the value of x.
151. Bond dissociation energy of XY,  $\text{X}_2$  and  $\text{Y}_2$  (all diatomic molecules) are in the ratio of 1 : 1 : 0.5 and  $\Delta_f H^\circ$  of XY is  $-100\text{kJ mol}^{-1}$ . The bond dissociation energy of  $\text{X}_2$  is  $100x$ . Find the value of x. 
152. The lattice energy of solid KCl is  $181\text{ kcal mol}^{-1}$  and the enthalpy of solution of KCl in  $\text{H}_2\text{O}$  is  $1.0\text{ kcal mol}^{-1}$  if hydration enthalpies of  $\text{K}^+$  and  $\text{Cl}^-$  ions are in the ratio of 2 : 1 then the enthalpy of hydration of  $\text{K}^+$  is  $-20x\text{ K cal mol}^{-1}$ . Find the value of x. 