

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

96.

$$SO_2 + \frac{1}{2}O_2 \longrightarrow SO_3$$
  $\Delta H = -98.7 \text{ kJ}$ 



$$SO_3 + H_2O \longrightarrow H_2SO_4$$

 $\Delta H = -130.2 \, kJ$ 

$$H_2 + \frac{1}{2}O_2 \longrightarrow H_2O$$

 $\Delta H = -287.3 \text{ kJ}$ 

$$S + H_2 + 2O_2 \longrightarrow H_2SO_4$$

 $\Delta H = -814.4 \text{ kJ}$ 

Then enthalpy of formation of SO<sub>2</sub> at 298 K is:

(A)

 $-298.2 \, kJ$ 

**(B)** 

 $-650.3 \, kJ$ 

(C)

 $-320.5 \, kJ$ 

(D)

 $-233.5 \, kJ$ 

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

Then heat of atomization of H2 is: 52 kcals

(A)

(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

A > D > C > B(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 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

-3.77

-1.79

(C) -100.5 **(D**) None of these

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

highest in

lacksquare

(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

The enthalpy of formation of UF(g) is 22 kcal mol<sup>-1</sup> and that U(g) is 128 kcal mol<sup>-1</sup>. The bond energy of the lacksquareF - F bond is 37.0 kcal mol<sup>-1</sup>. The bond dissociation energy of UF(g) is/are

 $124.5\ kcal\ mol^{-1}$ (A)

131.1 kcal mol<sup>-1</sup> **(B)** 

(C) 521 kJ mol-1 (D) 623 kJ mol-1

103. Heat of neutralization between HCl and NaOH is - 13.7 kcal equiv<sup>-1</sup>. Heat of neutralization of H<sub>2</sub>C<sub>2</sub>O<sub>4</sub> (oxalic acid) with NaOH is - 26 kcal mol<sup>-1</sup>. Hence, heat of dissociation of  $H_2C_2O_4$  as

 $H_2C_2O_4 \Longrightarrow 2H^+ + C_2O_4^{2-}$ , is:

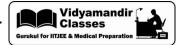


12.3 kcals mole-1 (A)

**(B)** 1.4 kcals mole<sup>-1</sup>

-39.7 kcals mole-1 (C)

(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.

5400 Cal

- (A) 7290 Cal (B)
- (C) 7200 Cal (D) 8100 Cal