Gurudas College

Internal Assessment, 2021

Chemistry (Honours)

BSc. Semester-III

Paper- CC-3-5

Time - 30 minutes **Full Marks - 10**

Among the following, you have to answer **TEN marks** question

1. Write down the thermodynamic criteria of a gas to be ideal. [1]
2. The ΔH_f^0 for Al_2O_3 (s) and MnO_2 (s) are -1590 KJ mol^{-1} and -514.6 KJ mol^{-1} respectively. Calculate the heat of the following reaction at 298 K,

   $$3MnO_2 + 4Al \rightarrow 2Al_2O_3 + 3Mn$$ [2]
3. What is Joule-Thomson effect? [1]
4. What is the efficiency of the refrigerator? [1]
5. What is the function of a salt bridge? [1]
6. What is the liquid junction potential? Write an electrochemical cell with liquid junction potential. [2]
7. For a concentration cell, the E^0_{cell} is always found to be zero. Justify your answer. [2]
8. The degree of dissociation of pure water at 18℃ is found to be 1.8×10^{-9}. Find ionic product of water and its dissociation constant at 18℃. [2]
9. 30 ml 0.2(N) H_2SO_4 solution is mixed with 20 ml 0.3 (N) H_2SO_4. What will be the pH of the mixed solution? [2]
10. Write the unit of ionic product water. [1]