**Chapter –IV**

**Use of free energy in chemical equilibria- CO-2**

**Section –A Short answer questions ( 2 Marks Each)**

Q.1. Define the terms internal energy and entropy?

Q.2. What do you mean by free energy of a system?

Q.3. Define cell potential or EMF of the cell?

Q.4. Give the action of hard water on soap?

Q.5. Explain the different metal oxide layers formed during the corrosion of metal?

Q.6. Explain the terms oxidation and reduction?

Q.7. Write down the chemical formula of rust and zeolite ?

Q.8. Explain the Galvanic Corrosion?

Q.9. What are ion exchange resins? How will you purify water by using resins?

**Section –B Long answer questions ( 4 Marks Each)**

Q.10. Explain the mechanism of Wet electrochemical corrosion?

Q.11. Explain Arrhenius concept of acids and bases?

Q.12. Explain the Lewis concept of acids and bases?

Q.13. What are the applications of free energy change in electrical work?

Q.14. The solubility of magnesium hydroxide {Mg(OH)2} at 298 K is 1.71 ͯ 10-4mol dm-3 calculate the solubility product?

Q.15. Explain Ellingham diagram along with its applications?

Q.16. Derive Nernst equation along with its applications?

Q.17. Derive the correlation between free energy and e.m.f of a cell?

Q.18.with the help of Ellingham diagram explain why CO acts as a reducing agent in the production of cast iron from haematite.

Q.19 What are the applications of ion Exchange process over Zeolite process?

Q.20 Derive the Pressure volume work in case of work done by the system.