COURSE CODE - 2030201

PG DEGREE EXAMINATION- JAN 2009

M.SC (CHEMISTRY)

INORGANIC CHEMISTRY-I

(For the Candidates Admitted from Calendar 2007 onwards)

Time: 3 hours **Max. Marks 75**

Section-A

Answer All Questions: 15X1=15

1. Give two examples each for paramagnetic and diamagnetic transition metal ions.
2. Write any one postulate of quantum mechanics.
3. What is Eigen value?
4. Write the term symbol for Carbon atom in its ground state.
5. What is Pauli's exclusion principle?
6. Define microstate.
7. What is resonance?
8. Structure of Flourite is _____
9. What is symmetry molecular orbital?
10. What is chelate complex?
11. Give an example for a transition metal.
12. Define hydrogen bonding.
13. What is nephelauxetic effect?
14. What is sigma bond?
15. Give anyone limitation of CFT.

Section – B

Answer any Five Questions: 5X6=30

16. a. Derive Schrodinger wave equation for hydrogen atom.

    (Or)

    b. Explain wave particle duality.
17. a. Explain the quantum numbers and their significance.

    (Or)

    b. What is inter electron repulsion? Explain its consequences.
18. a. Write the postulates of MOT.

    (Or)

    b. Derive Born equation.
19. a. Explain the spectrophotometric method for the determination of stability constant.

    (Or)

    b. Write the postulates of Ligand Field theory.
20. a. Discuss the splitting of d-orbitals in octahedral geometry.

    (Or)

    b. Explain Jahn-Teller effect with examples.

Section – C

Answer any Two Questions 2X15=30

21. Derive schorindinger wave equation for a particle in a three dimentional box.
22. Explain the structure of the following
    a. Sodium chloride
    b. Cesium chloride
    c. Rutile
23. What are the postulates of V.B.T and C.F.T.? Explain.
24. Discuss in detail the plank's quantum theory and Heisenberg's uncertainity principle.
25. Explain the PH metric and spectrometric methods in detail