SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.
M.Sc.(Chemistry) END SEMESTER EXAMINATIONS NOVEMBER - 2023
SEMESTER - I
22PCHCT1002 - Structural Inorganic Chemistry and Photochemistry

Total Duration : 2 Hrs. 30 Mins. Total Marks : 60

Section B

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

1. Explain order-disorder transformations in solid state solutions.
2. Classify the magnetic materials based on types of magnetism.
3. Write synthesis of boron cage compounds.
4. Discuss the photosystem involving $[Ru(bpy)_3]^{2+}$ for the conversion of water into hydrogen.
5. Explain the magnetic properties of ferrites and garnets.
6. Discuss the preparation, properties and applications of Isopoly tungstates.
7. Describe the synthesis of B_4H_{10} and B_2H_6 Derive their styx code and write their structures.
8. Discuss the photosubstitution reactions in coordination complexes with particular reference to Co (III)

Section C

I - Answer any **TWO** questions $(2 \times 10 = 20$ Marks)

9. a) Discuss about the structure of spinels & Inverse spinels.
   b) Write about the various types of defects in solids, its causes and application.
10. Write short notes on the following
    a) Meisner effect, b) Hysteresis, c) Cooper pairs.
11. Write briefly about carboranes and metal clusters of Rhenium.
12. Explain the structures of the following silicates:
    i) Kaolinite ii) Talc iii) Beryl iv) Muscovite mica

II - Compulsory question $(1 \times 10 = 10$ Marks)

13. a) Explain the photoredox and photosubstitution reactions of Cr (III) complex.
    b) Discuss the role of complexes in the DSSC

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