



THE AMERICAN COLLEGE, MADURAI

(An Autonomous Institution Affiliated to Madurai Kamaraj University)

Re-accredited (2nd Cycle) by NAAC with Grade "A", CGPA – 3.46 on a 4-point scale

Backlog Arrear Examination, March 2021

PGC 5504

INORGANIC CHEMISTRY-IV

Max : 75 mks

Time : 3 Hrs

Answer any FIVE questions

(5 x15 = 75)

1. a) Give an account on clathrates compounds.
b) Explain the inclusion behaviour of crown ethers and its applications.(7+8)
2. a) Explain the following terms and give its important applications
i) purple benzene ii) Graham's salt iii) naked anion
b) Derive the topologically acceptable styx code for B_5H_{11} . Show its salient features of its ^{11}B nmr?(10+5)
3. Discuss the base catalysed polymerization mechanism of cyclic siloxane and factors affecting the rate of polymerization reaction(15)
4. a) Discuss the preparation, properties and structure of polythiazyls?
b) Explain the synthesis of S_4N_4 ? Describe the bonding involved in it? (7+8)
5. a) Give one method of preparation of the following compounds
i) $P_4S_6O_4$ ii) $P_4S_3(CN)_2$ iii) β - P_4S_3 iv) R_2SiH_2
b) Describe a method of preparation and structure of heteropolyacids(8+7)
6. a) Discuss in detail the polymerization and depolymerisation mechanism of cyclophosphazenes.(15)
7. Give a brief account on
 - a. aromaticity in siloxanes.
 - b. regioselectivity of cyclodextrins
 - c. Catenated oxoacids of sulphur (3x5)
