



# THE AMERICAN COLLEGE, MADURAI

(An Autonomous Institution Affiliated to Madurai Kamaraj University)

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

## Backlog Arrear Examination, March 2021

CHE/CHS 3613

INORGANIC CHEMISTRY – V

Max – 75 marks

Time – 3 hrs

Answer any 5 questions

(5X15=75)

- (a) Bring out the importance of vibrational spectroscopy in the study of metal carbonyls.

(b) How is Ziese's salt prepared? Explain its bonding given by Dewar. (8+7)
- (a) What is trans effect? Give its synthetic utility. Explain the  $\pi$ -bonding theory of trans effect.

(b) Write on (i)  $S_N2$  mechanism of acid hydrolysis (ii) Zeigler-Natta catalysis (6+9)
- (a) Write a note on metal toxicity.

(b) What are metalloenzymes? Explain with an example. (7+8)
- (a) Describe the extraction of Uranium from its ore.

(b) Give a comparative account of lanthanides with actinides. (7+8)
- (a) Explain the dependence of nuclear stability on N/p ratio with respective modes of decay.

(b) With a neat sketch explain the construction and working of a nuclear reactor. (6+9)
- (a) What is lanthanide contraction? Enumerate its consequences.

(b) Explain the ion-exchange chromatography method of separation of lanthanides. (7+8)
- (a) Describe the functioning of hemoglobin.

(b) How is ferrocene prepared? List four of its chemical reaction. (8+7)

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