



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

CHE 3421

PHYSICAL CHEMISTRY

Time: 3 Hours

Max Marks: 75

Answer **ANY FIVE** Questions

(5 X 15 = 75)

- Discuss the Debye-Huckel theory of strong electrolytes (8)
 - Explain a method for the determination of equivalent conductance. Define specific conductance. (7)
- Derive the relationship between K_b , K_a and K_w . (10)
 - Discuss common ion effect. (5)
- Derive expression for the EMFs of concentration cells with transference. (8)
 - What is overvoltage? Discuss any one of the important applications of this phenomenon. (7)
- Draw and discuss phase diagram for lead-silver system. (8)
 - Derive Gibbs phase rule. (7)
- Discuss the photo kinetics of hydrogen-chlorine reaction. (10)
 - Explain photosensitisation with an example. (5)
- Draw NMR spectrum of ethyl alcohol using an energy level diagram and appropriate selection rule(10)
 - Discuss the principle of photoelectron spectroscopy. (5)
- Discuss the theories of overvoltage. (10)
 - Differentiate between thermal and photochemical reactions. (5)
