

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 1501/1511/1525 **CHEMISTRY FOR BIOLOGIST-I Time: 3 Hours** Max Marks: 75 5X7 = 75**Answer any FIVE questions** 1. a) Write a note on i) ionisation energy ii) Electronegativity (5) b) What is meant by hybridisation? Give any two examples. (5) c) Illustrate Octet rule and Fajan's rule. (5) 2. a) List the postulates of MO theory. (5)b) Describe the VSEPR of H₂ and O₂ with a neat diagram (10)3. a) Classify H-bonding. What are the consequences of H-bonding? (6) b) Define lattice energy. With a neat diagram of Born-Haber cycle, discuss about the determination of lattice energy for an ionic solid NaCl. (9) 4. a) State and explain the law of mass action. (3)b) Explain the effect of temperature and concentration towards the equilibrium reactions with the help of Le Chatlier principle. (8) c) Give any four applications of thermodynamics to the biological systems. (4) 5. a) What is molality and normality? (5) b) Briefly discuss about osmotic pressure and osmosis (5) c) Give the significance of osmosis in biological systems. (5) 6. a) Distinguish between thermal and photochemical reactions. (5) b) Write a short note on the following types of organic reactions. Addition reaction ii) Elimination reaction iii) Oxidation reaction iv) Reduction reaction v) Substitution reaction (10)7. a) Describe photosensitization with suitable example. What is the role of photosensitization in biological systems. (7)b) Define the following processes: i) Fluorescence ii) Phosphorescence iii) Chemiluminescence iv) Bioluminescence (8)