



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 2501

PRINCIPLES OF CHEMISTRY-I

Time: 2 hours

Max:75 Marks

(Answer any Four Questions)

(5x15 = 75)

1. a) Derive Born Haber cycle for the formation of NaCl. [8]
b) Draw and explain molecular orbital diagram for N₂ molecule. [7]
2. a) Define hydrogen bond. Discuss about the consequence of hydrogen bonding. [7]
b) Using VSEPR theory predicts the structure of BF₃ and H₂O. [8]
3. a) Derive the integrated form of the Van't Hoff equation for a chemical equilibrium for the reaction isotherm. [9]
b) Describe any one method for the measurement of osmotic pressure. [6]
4. a) Write a notes on the types of solution. [7]
b) What is chemical equilibrium? Describe the relationship between K_p and K_c for a chemical equilibrium. [8]
5. a) What are carbohydrates? Explain their classification. [8]
b) What are reducing sugars? Explain with examples. [7]
6. a) Discuss the classification of amino acids. [8]
b) Explain N-terminal analysis of peptides. [7]
7. Discuss the primary, secondary and tertiary structure of proteins. [15]