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 2442/2412 CHEMISTRY FOR PHYSICISTS-II

Time: 3 Hours

Max Marks: 75

Answer any FIVE Questions (5 X 15 = 75)

1. a) Discuss about the temperature dependance of rate reaction by using Arrhenius equation.

   b) Derive the expression for the rate constant of first order reaction. [7+8]

2. a) Discuss Hess's law and its applications.

   b) How enthalpy of combustion is measured by using Bomb Calorimeter ? [7+8]

3. a) Discuss about the Crystal field splitting in an octahedral crystal field.

   b) Define EAN rule. Which is expected to be more stable $[Cu(NH_3)_4]^{2+}$ or $[Cu(CN)_4]^{3-}$ on the basis of EAN rule. [7+8]

4. a) What are meso compounds ? Are the meso compounds optically active or inactive ? Explain your answer through a suitable example.

   b) Comment on the physical and chemical properties of enantiomers and diastereomers. [8+7]

5. a) How carbohydrates are classified ?

   b) Write note on Starch.

   c) Explain mutarotation. [5+5+5]

6 a) Define peptide bond. How the amino acids are classified and prepared ?

   b) Explain the types of proteins. [7+8]

7. a) Explain about Michaelis Menten hypothesis and its applications.

   b) Discuss about Kirchoff's equation. [7+8]

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