

Mahishadal Raj College

B.Sc. (Hons) Internal Examination 2020

(under CBCS pattern)

Semester -IV

Subject: Chemistry

Paper: CC-8 (T + P) Physical Chemistry-III

Full marks: 20 (T)+10 (P)

Time: 2h

Answer any **one question** from each part

Part-A: Physical Chemistry (Theory)

1. State Raoult's law. Write a short note on abnormal colligative properties of solution.
2. Define phase diagram. Explain phase diagram for CO_2 with proper labelling.
3. How will you estimate activity coefficient for electrolytes using Debye-Huckel limiting law?
4. Briefly describe the applications of electrolysis in metallurgy and industry.
5. Explain with example – the advantages of separation of variables in quantum mechanics.
6. Compare LCAO-MO and VB treatments to the bonding of H_2 .

Part-B: Physical Chemistry (Practical)

1. Write the theory on the determination of solubility of sparingly soluble salt in water, in electrolyte with common ions and in neutral electrolyte (using common indicator) and also write the objective of the experiment.
2. Write the theory on the determination potentiometric titration of Mohr's salt solution against standard $K_2Cr_2O_7$ solution and also write the objective of the experiment.
3. Write the theory on the study of phenol-water phase diagram and also write the objective of the experiment.
4. Write the theory on the pH-metric titration of mono basic acid against strong base and also write the objective of the experiment.