CR-2483

M. Sc. (First Semester) Examination,

Nov.-Dec. 2018

CHEMISTRY

Paper : Third

(Physical Chemistry-I)

Time Allowed : Three hours

Maximum Marks : 40

Note : Attempt questions of all two sections as directed. Distribution of marks is given with sections.

Section-'A'

(Short Answer Type Questions)   5x3=15

Note : Attempt all questions. Each question carries 3 marks.

   1. Explain the Schrodinger wave equation.

Or

  Discuss various operator used in quantum mechanics.

2. Define Huckel theory for conjugated system.

Or

Write application of variation method.

3. Explain Pauli's principle with example.

Or

What is angular momentun? Discuss the eigen value of angular momentum.

4. What is fugacity? Determine of fugacity.

Or

Write note on ionic strength.

5. What are partition function?

Or

What are pastulates of ensemble overgoing?

Section 'B'

(Long Answer Type Questions)   5x5=25

Note: Attempt all questions. Each question carries 5 marks.

 6. Derive an expression for energy of particle in three

dimensional box.

Or

Derive the Schrodinger wave equation for Hydrogen atom.

7. Write application of ethylene, butadiene, cyclopropenyl.

Or

Explain the variation principle.

8. How to define Ladder operator in angular momentum and explain it.

Or

Write note on:

(1) Spin

(i) Antisymmetry

9. Write a brief note on partial Molar free energy and its significance.

Or

What is phase rule? Define second order phase transition.

10. Details on distribution thermodynamic probability and most
probable distribution

Or