M.Sc. DEGREE EXAMINATION,APRIL 2020
I Year II Semester
Physical Chemistry - II

Time : 3 Hours **Max.marks :75**

Section A $(10 \times 2 = 20)$ Marks

Answer any **TEN** questions

1. Define thermodynamic probability.
2. What is partition function?
3. What do you mean by ortho and para hydrogen?
4. State Curie's theorem.
5. What are parallel reactions? Give an example.
6. Compare the kinetics of HCl and HBr.
7. List out the inadequacy of classical theory.
8. State Heisenberg uncertainity principle.
9. What are nodes?
10. Write down the wave function of a particle in a ring.
11. What is the effect of temperature on enzyme catalysis?
12. What do you mean by microscopic irreversibility?

Section B $(5 \times 5 = 25)$ Marks

Answer any **FIVE** questions

13. Discuss about Maxwell Boltzmann statistics.
14. Explain entropy production.
15. With necessary graph, explain Langmuir isotherm.
16. Explain Compton effect.
17. Write a note on degeneracy.
18. Discuss Rice-Herzfeld mechanism .
19. Derive the expression for Translational partition function.

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. Derive Sackur – Tetrode equation..
21. Explain Einstein model of heat capacity of solids.
22. Derive BET isotherm.
23. Write a note on wave particle duality and photo electric effect.
24. Write Schrodinger wave equation for a particle in a one dimensional box and solve it.

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