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PG CBCS
M.Sc. Semester-IV Examination, 2021
PHYSICS
PAPER: PHS 401

Full Marks: 40 **Time: 2 Hours**

Write the answer for each unit in separate sheet

The figures in the right-hand margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable

401.1: PARTICLE PHYSICS

Marks: 20

Answer any TWO questions of the following: **10×2=20**

1. Explain the importance of Group Theory in Particle Physics.
2. Explain how kinematics of decay of fundamental particles can be exploited by Special theory of relativity. Cite example.
3. "Time dependent Schrodinger equation satisfy the time reversal symmetry"- explain.
   Discuss the importance of Clebsch Gordan coefficients in elementary Particle reaction.

401.2: STATISTICAL MECHANICS-II

Marks: 20

Answer any TWO questions of the following: **10×2=20**

1. Explain the importance of Landau-Ginzburg theory in explaining the second order phase transition.
2. Explain the differences between ultrarelativistic and non-relativistic Bose gas and also between Ideal gas and Ideal Bose gas.
3. What are the differences between Landau diamagnetism and Paulie's paramagnetism?
4. Discuss the role of chemical potential in determining the population of a given state for Ideal Bose and Ideal Fermi gas.

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