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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. Discuss the importance of G-parity in Particle Physics? In which way C-Parity and G- Parity differ from each other.
2. Write down the fundamental differences between Photon and Neutrino. In which way Left handed and Right handed neutrino differ from each other.
3. Write down the essential criteria for the feasibility of the decay process of an elementary particle.
4. "Deep Inelastic Scattering experiment is of great fundamental importance in Particle Physics"-- Explain.

401.2: STATISTICAL MECHANICS-II

Marks: 20

Answer any TWO questions of the following:

10×2=20

1. Discuss the difference between the concept of Photoelectric Effect in Classical Picture and Statistical Picture.
2. "There exist a single particle energy level at T=0 K for ideal Bose Gas"- Justify your views in favor or against this statement.
3. Given the exponent s ($E \propto P^s$) and dimensionality d , write down the dependence of Pressure, Fermi Energy and average energy on density of electron. How does this result different if we take photon gas instead of electron gas.
4. "There exists an uniqueness in the LdG model of explaining Phase Transition "- Explain this statement.
