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B.E. (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL 2012

MECHANICAL ENGINEERING BRANCH

FOURTH SEMESTER – (REGULATIONS 2008)

ML 9255 – SOLID STATE PHYSICS

Time : 3 hr

Max Mark : 100

Answer ALL Questions

Part – A (10 × 2 = 20 Mark)

1. What are matter waves?. Write the expression relating wavelength and momentum for matter waves.
2. What is Heisenberg's uncertainty principle?. Write the equations relating uncertainty in position - momentum and energy – time.
3. What is Fermi distribution function and write its expression.
4. Write the Widemann- Franz ratio.
5. Name the different types of polarization processes.
6. Write the expression for Clausius-Mosotti relation?
7. What is the reason for magnetism?
8. What are the different types of magnetic materials?
9. What are Cooper pairs in superconductivity?
10. What is Isotope effect in superconductivity?

(P.T.O)