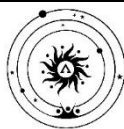


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Course Code: 241PH001



ADITYA UNIVERSITY

B.Tech – I Semester End Examinations Supplementary – APR 2025

SOLID STATE PHYSICS (Common to CE, ME, Min.E & PT)

Time: 3 hours

Max. Marks: 50

Answer ONE question from each unit

All Questions Carry Equal Marks

All parts of the questions must be answered at one place only

UNIT-I

- 1 a State and explain Hooke's law with stress-strain curve. L2 CO1 [5M]
b Derive an expression for bending moment for a beam L2 CO1 [5M]

(OR)

- 2 Derive Relation between different Elastic Moduli L2 CO1 [10M]

UNIT-II

- 3 Define Atomic Packing Fraction. Calculate the Atomic Packing Fraction for SC, BCC and FCC. L2 CO2 [10M]

(OR)

- 4 a State and explain Bragg's law of X-ray diffraction. L2 CO2 [5M]
b Describe Laue method to analyze the crystal structure L2 CO2 [5M]

UNIT-III

- 5 a Explain Drift and Diffusion currents in detail. L2 CO3 [6M]
b Distinguish between intrinsic and extrinsic semiconductors. L2 CO3 [4M]

(OR)

- 6 a Explain Hall-Effect and derive an expression for Hall-coefficient. L2 CO3 [8M]
b Write the applications of Hall-effect. L1 CO3 [2M]

UNIT-IV

- 7 Explain the origin of magnetic moment in an atom. L2 CO4 [10M]

(OR)

- 8 a Explain Ferromagnetic hysteresis curve with neat diagram. L2 CO4 [8M]
b Write the difference between Hard and Soft magnetic materials. L1 CO4 [2M]

UNIT-V

- 9 a Explain Frequency dependence of Polarization L2 CO5 [6M]
b Write the applications of dielectric materials L2 CO5 [4M]

(OR)

- 10 Define Electronic Polarization. Derive an expression for electronic Polarizability. L3 CO5 [10M]
