H.T.No: | | | | | | | | | | | 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]

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