H.T No										

Sreenidhi Institute of Science and Technology
(An Autonomous Institution)

Regulations: A22

Code No:9HC07 **Date: 21-Mar-2023 (FN)**

B.Tech I-Year I- Semester External Examination, March-2023 (Regular)
ENGINEERING PHYSICS (EEE, ECE and ECM)

Time: 3 Hours **Max.Marks:60**

Note: ***a)*** *No additional answer sheets will be provided.*
b) All sub-parts of a question must be answered at one place only, otherwise it will not be valued.
c) Missing data can be assumed suitably.

Bloom's Cognitive Levels of Learning (BCLL)

Remember	L1	Apply	L3	Evaluate	L5
Understand	L2	Analyze	L4	Create	L6

Part - A Max.Marks: 6x2=12

ANSWER ALL QUESTIONS, EACH QUESTION CARRIES 2 MARKS.

		BCLL	CO(s)	Marks
1	What is dual nature of light?	L1	CO1	[2M]
2	Define spontaneous emission.	L1	CO2	[2M]
3	What are applications of soft magnetic materials?	L1	CO3	[2M]
4	Define electric dipole.	L1	CO4	[2M]
5	Illustrate the variation of Fermi level in n-type semiconductor with respect to temperature.	L2	CO5	[2M]
6	Explain term nanotechnology.	L2	CO6	[2M]

Part – B Max.Marks: 6x8=48

ANSWER ALL QUESTIONS. EACH QUESTION CARRIES 8 MARKS.

			BCLL	CO(s)	Marks
7.	a)	Discuss G.P. Thomson experiment and list out its demerits.	L4	CO1	[8M]
		OR			
	b)	Derive an expression for Schrödinger's time independent wave equation.	L6	CO1	[8M]
8.	a)	What are Einstein's coefficients? Derive an equation for them.	L6	CO2	[8M]
		OR			
	b)	What is attenuations in the optical fiber? Discuss in detail.	L4	CO2	[8M]
9.	a)	Derive an expression for bohr magneton.	L6	CO3	[8M]
		OR			
	b)	Elaborate BCS theory for superconductivity.	L4	CO3	[8M]
10.	a)	What is ferroelectricity? Explain its properties.	L4	CO4	[8M]
		OR			
	b)	Derive an expression for electronic polarizability.	L6	CO4	[8M]
11.	a)	Explain formation of PN junction diode.	L4	CO5	[8M]
		OR			
	b)	Describe construction and working principle of LED.	L6	CO5	[8M]
12.	a)	What is quantum confinement? Discuss in detail.	L5	CO6	[8M]
		OR			
	b)	Discuss fabrication of nanomaterials using sol-gel method.	L6	CO6	[8M]

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