H.T No										

Sreenidhi Institute of Science and Technology
(An Autonomous Institution)

Regulations: A22

Code No:9HC07 **Date: 16-August-2024 (FN)**

B.Tech I-Year II- Semester External Examination, August-2024 (Supplementary)
ENGINEERING PHYSICS (CSE, IT, CS, AIML, DS and IOT)

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	How is the probability density related to the wave function?	L2	CO1	[2M]
2	What are the advantages of using optical fibers for communication?	L1	CO2	[2M]
3	What is meissner effect?	L1	CO3	[2M]
4	Define Electric Susceptibility.	L1	CO4	[2M]
5	Sketch I-V characteristics of a PN junction diode.	L3	CO5	[2M]
6	Define the nano scale in terms of length.	L1	CO6	[2M]

Part – B Max.Marks: 6x8=48

ANSWER ALL QUESTIONS. EACH QUESTION CARRIES 8 MARKS.

		BCLL	CO(s)	Marks
7.	Derive the Schrödinger time independent wave equation for a particle in a potential field.	L6	CO1	[8M]
	OR			
8	Provide a detailed account of the Davisson and Germer experiment. How did this experiment confirm the wave nature of electrons?	L3	CO1	[8M]
9.	Describe construction and working principles of Ruby Laser	L6	CO2	[8M]
	OR			
10	Derive the mathematical expression for numerical aperture and discuss its significance in determining the light-gathering ability of an optical fiber.	L6	CO2	[8M]
11	What is Hysteresis? Explain B-H curve nature in Ferro magnetic materials based on domain theory.	L4	CO3	[8M]
	OR			
12	Explain the BCS theory of superconductivity.	L4	CO3	[8M]
13	Derive an expression for Clausius-Mossotti equation	L6	CO4	[8M]
	OR			
14	Describe the underlying principles and mechanisms of piezo-electricity and ferro-electricity.	L6	CO4	[8M]
15	Discuss the principles and operation of an LED	L6	CO5	[8M]
	OR			
16	Describe the working principle of a solar cell	L6	CO5	[8M]
17	Describe the bottom-up fabrication approach using the sol-gel method	L6	CO6	[8M]
	OR			
18	Explain the chemical vapor deposition (CVD) technique for nano material fabrication.	L4	CO6	[8M]

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