

SIDDHARTH INSTITUT	<b>OF ENGINEERING &amp;</b>	<b>TECHNOLOGY:: PUTTUR</b>
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## (AUTONOMOUS) B.Tech I Year I Semester Regular Examinations July- 2021 APPLIED PHYSICS

	[Common to CSE, CSE (AI & ML), CSE (IOT) & CSIT]		
	Time: 3 hours	Max. N	Aarks: 60
	(Answer all Five Units 5 x 12 = 60 Marks) UNIT-I		
1	<b>a</b> Discuss the theory of interference of light due to thin films by reflection with suitable ray diagram.	L1	<b>4M</b>
	<b>b</b> Derive the condition for constructive and destructive interference in the case of reflected system.	L4	8M
	OR	T 4	( <b>1</b> -
2	a Define diffraction. Distinguish between Fraunhofer and Fresnel's diffraction.		6M
	<b>b</b> Distinguish between Interference and Diffraction.	L4	6M
	UNIT-II		
3	a Write brief note on Fermi Dirac distribution.	L1	6M
	<b>b</b> What is the effect of temperature on Fermi Dirac distribution function?	L1	6M
	OR		
4	Explain the propagation of electromagnetic wave in non-conducting media.	L4	12 M
	UNIT-III		
5	<b>a</b> Describe the construction and working principle of He-Ne Laser with the help of a neat diagram.	L3	<b>8M</b>
	<b>b</b> Write the advantages of He-Ne laser.	L1	<b>4M</b>
	OR		
6	<b>a</b> What is the acceptance angle of an optical fiber and derive an expression for it.	L1	<b>8M</b>
	<b>b</b> An optical fibre has a core refractive index of 1.44 and cladding refractive index of 1.40. Find its numerical aperture and $\theta a$ .	L1	4M
7	Explain the formation of p-type and n-type semiconductors with band diagram. OR	L4	12 M
8	a Describe the Hall Effect in semiconductors.	L3	<b>8M</b>
	<b>b</b> Write the applications of Hall Effect.	L1	<b>4M</b>
	UNIT-V		
9	a What is Meissner effect?	L1	5M
	<b>b</b> Explain the Type-I and Type-II superconductors. <b>OR</b>	L4	7 <b>M</b>
10	<b>a</b> What are the techniques available for synthesizing nanomaterials?	L1	<b>4M</b>
	<b>b</b> Explain ball milling technique for synthesis of nanomaterial.	L4	8M

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