Q.P. Code: 20HS0849 **R20**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech I Year II Semester Regular Examinations November-2021

APPLIED PHYSICS

(Common to EEE & ECE)

Time: 3 hours Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	State and explain principle of superposition.	L1	6M
	b	Summarizing the importance conditions to get interference.	L2	6M
		OR		
2	a	What is Diffraction grating and explain.	L4	8M
	b	Find the highest order that can be seen with a grating having 15000 lines/inches. The wavelength of the light used is 600 nm.	L4	4M

UNIT-II

3	a	Write brief note on Fermi Dirac distribution.	L1	6M
	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	12M

UNIT-III

5	a	Describe the construction and working principle of Nd:YAG Laser with the help of a neat diagram.	L3	9M
	b	Calculate the wavelength of emitted radiation from GaAs which has a band gap of 1.44eV.	L4	3M
		OR		
6		Explain the classifications of optical fibers based on refractive index profile and mode of propagation.	L4	12M

UNIT-IV

7	a	What is Fermi level? Prove that the Fermi level is lies exactly in between conduction band and valance band of intrinsic semiconductor.	L4	8M
	b	Draw the energy band structure of intrinsic semiconductor.	L3	4M
		OR		
8	a	Explain the formation of p-n junction.	L4	4M
	b	Describe the construction and working mechanism of Photodiode.	L3	8M

UNIT-V

9	a	Explain the Type-I and Type-II superconductors.	L4	7M
	b	What is Meissner effect?	L1	5M
		OR		
10	a	What are the techniques available for synthesizing nanomaterials?	L1	4M
	b	Explain ball milling technique for synthesis of nanomaterial.	L4	8M

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