O.P.Code: 20HS0848	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Techl Year I Semester Supplementary Examinations February-2024

ENGINEERING PHYSICS

(Common to CE & AGE)

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.	CO1	L1	6M
	b	Define interference and summarizing the importance conditions to get sustained interference.	CO1	L1	6M
		OR			
2	a	Describe Fraunhofer diffraction due to double slit and derive the conditions for principal maxima, secondary maxima and minima.	CO1	L2	8M
	b	Compare Interference and Diffraction.	CO1	L3	4M

UNIT-II

3	a	Define (i) Unit cell (ii)space lattice (iii) Bravais Lattice iv)Lattice parameters	CO2	L1	4M
	b	Show that FCC is mostly closed packed structure than BCC and SC.	CO2	L3	8M
		OR			
4	a	What is Bravais lattice? What are the different space lattice in the cubic system.	CO2	L1	8M
	b	For a cubic system ,if 'a' is the lattice constant ,then find the interplanar separation for (111) planes.	CO2	L1	4M

UNIT-III

5	a	What are the basic requirements of acoustically good hall?	CO3	L1	8M
	b	A class room of volume 360 m3 has a reverberation time 1.6 seconds. Calculate the total sound absorption coefficient of the class room?	CO3	L4	4M
		OR			
6	a	Explain Piezoelectric effect.	CO3	L1	6M
	b	How ultrasonics are produced by using piezoelectric generator?	CO3	L1	6M

UNIT-IV

7	a	Define the following i) Elasticity ii) isotropic materials iii) Plasticity iv) Hooke's law	CO4	L1	4M
	b	Derive the relation between different elastic moduli.	CO4	L3	8M
		OR			
8	a	Define shear strain. Explain how shear strain is related to modulus of rigidity.	CO4	L1	8M
	b	Estimate the work done in stretching a wire of cross section 1.25 mm^2 and length 1.9 m through 0.14 mm. The Young's modulus of wire is 45 $x10^9$ N/m^2.	CO4	L4	4M

UNIT-V

9	a	Write the properties of Superconductors.	CO5	L3	4M
	b	Explain BCS theory of superconductors.	CO5	L1	8M
		OR			
10	a	What are the techniques available for synthesizing nanomaterials?	CO5	L1	6M
	b	Explain ball milling technique for synthesis of nanomaterial?	CO5	L1	6M

***** END *****