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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech I Year I Semester Supplementary Examinations November-2021

ENGINEERING PHYSICS

(Common to CE and 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.	L1	6M
	b	Summarize the important conditions to get interference.	L2	6M
		OR		
2	a	Explain the theory of Fraunhoffer diffraction due to single slit.	L4	8M
	b	Obtain conditions for bright and dark fringes in single slit diffraction pattern and draw intensity distribution.	L4	4M

UNIT-II

3	a	What is (i) Unit cell (ii) Basis (iii) Bravais Lattice iv) Lattice Point.	L1	4M
	b	Explain the various types of crystal systems with neat sketch and examples.	L4	8M
		OR		
4	a	Explain how the X-ray diffraction can be employed to determine the crystal structure.	L4	9M
	b	The Bragg's angle for reflection from the (111) plane in a FCC crystal is 19.2^{o} for an X-ray wavelength of 1.54 A.U. Calculate cube edge of the unit cell.	L4	3M

UNIT-III

5	a	What is the importance of acoustics in engineering	L1	6M
	b	How we optimize the reverberation time in the music halls?	L1	6M
		OR		
6	a	What are the characteristics of sound?	L1	6M
	b	How will you classify sound waves based on their frequencies?	L3	6M

UNIT-IV

7	a	What is Hooke's law? Explain.	L1	4M
	b	Describe the behavior of a wire under an increasing load.	L3	8M
		OR		
8	a	Classify different types of beams.	L2	8M
	b	Obtain an expression for the internal energy due to strain.	L4	4M

UNIT-V

9	a	Write the properties of Superconductors.	L1	4M
	b	Explain BCS theory of superconductors.	L4	8M
		OR		
10	a	What are the techniques available for synthesizing nanomaterials?	L1	4M
	b	Explain any one technique for synthesis of nanomaterial.	L4	8M

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