Reg. No: ☐☐☐☐☐☐☐☐☐☐

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B. Tech I Year I Semester Supplementary Examinations Nov/Dec 2019
ENGINEERING PHYSICS
(CE, EEE, ME & AGE)

Time: 3 hours　　　　　　　　　　　　　　　　　　　　　　Max. Marks: 60

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

UNIT-I

1	a	Discuss Fraunhofer single slit diffraction.	**8M**
	b	Draw intensity distribution curves and give condition for bright and dark fringes in single slit diffraction pattern.	**4M**

OR

2	a	Explain the different pumping mechanisms in laser.	**4M**
	b	Explain the construction and working of Nd : YAG laser with suitable energy level diagram.	**8M**

UNIT-II

3	a	What is (i) Unit cell (ii) Basis	**2M**
	b	Show that FCC is mostly closed packed structure than BCC and SC.	**10M**

OR

4	a	Write the properties of Ultrasonic waves.	**4M**
	b	Describe the application of Ultrasonic in non destructive testing (NDT) of material.	**8M**

UNIT-III

5	a	Derive Schrödinger's time independent wave equation.	**8M**
	b	An electron is moving under a potential field of 15kv. Calculate the wavelength of electron wave.	**4M**

OR

6	a	Derive an expression for electrical conductivity in a metal using Quantum Free Electronic theory.	**8M**
	b	Write its advantages over classical free electron theory.	**4M**

UNIT-IV

7	a	Describe the Hall effect in a semiconductor.	**8M**
	b	Write the applications of Hall effect.	**4M**

OR

8	a	Derive relation between relative permeability and susceptibility.	**4M**
	b	Describe the classification of magnetic materials based on spin magnetic moments.	**8M**

UNIT-V

9	a	What are critical temperature, critical magnetic field and critical current?	**6M**
	b	Prove that super conductor is a very good diamagnetic material.	**6M**

OR

10	a	Explain ball milling technique for synthesis of nanomaterial.	**7M**
	b	Write the applications of nanomaterial.	**5M**

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