Q.P. Code: 18HS0850 **R18**

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B. Tech I Year I Semester Supplementary Examinations Nov/Dec 2019

PHYSICS

(Mechanical Engineering)

Time: 3 hours Max. Marks: 60

PART-A

(Answer all the Questions **5 x 2 = 10** Marks)

1	**a**	State Faraday's first law of electromagnetic induction.	**2M**
	b	Write any four properties of electromagnetic wave.	**2M**
	c	Write necessary conditions for good interference.	**2M**
	d	Differentiate between Laser beam and ordinary light beam.	**2M**
	e	Write allotropes of Carbon.	**2M**

PART-B

(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

2	**a**	State and explain coulomb's inverse square law in electricity.	**6M**
	b	Two electrons are a meter apart. What is the force between them? What direction is it in?	**4M**
		OR	
3	**a**	Describe the classification of magnetic materials based on spin magnetic moments.	**7M**
	b	Discuss the applications of soft magnetic materials.	**3M**

UNIT-II

4	**a**	Deduce the relation between the Electric (E) and Magnetic (B) fields of EM waves.	**10M**
		OR	
5	**a**	Explain momentum carried by an electromagnetic wave.	**5M**
	b	Explain radiation pressure of electromagnetic waves with example.	**5M**

UNIT-III

6	**a**	Describe the formation of Newton's ring with necessary theory.	**7M**
	b	Explain how the wavelength of light sources is determined by forming Newton's ring.	**3M**
		OR	
7	**a**	Define Reverberation and Reverberation time.	**4M**
	b	What are the basic requirements of acoustically good hall?	**6M**

UNIT-IV

8	**a**	Describe the important characteristic of laser beam.	**5M**
	b	Explain the difference between spontaneous and stimulated emission of radiation.	**5M**
		OR	
9	**a**	Explain the construction and working of Nd: YAG laser.	**8M**
	b	What are the advantages of Nd: YAG laser?	**2M**

UNIT-V

10	**a**	Explain why surface to volume ratio very large for nano materials.	**6M**
	b	What is Quantum Confinement?	**4M**
		OR	
11	**a**	What are the techniques available for synthesizing nanomaterials?	**3M**
	b	Explain ball-milling technique for synthesis of nanomaterial.	**7M**

END