Q.P. Code: 16HS603 **R16**

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech I Year II Semester (R16) Regular Examinations May/June 2017

ENGINEERING PHYSICS

(Common to CSE & ECE)

(For Students admitted in 2016 only)

Time: **3 hours** Max. Marks: **60**

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

UNIT-I

1	a.	Describe Fraunhofer diffraction due to single slit.	6M
	b.	For a grating, the angle of diffraction for the second order principal maximum for the wavelength $5x10^{-5}$ cm is 30^0. Find the number of lines per cm of the grating	6M

OR

2	a	Explain the construction and working of Nd: YAG Laser with suitable energy level diagram.	6M
	b	Explain the characteristics of laser lights	6M

UNIT-II

3	a.	Deduce the expression for the interplanar distances in terms of miller indices for a cubic system.	6M
	b.	Define Miller indices. Draw miller indices of planes (1 0 0), (1 1 1), (0 0 1).	6M

OR

4	a	Write the properties of ultrasonic waves.	6M
	b	Describe the application of ultrasonic in nondestructive testing (NDT) of material	6M

UNIT-III

5	a.	Explain the physical significance of wave function.	6M
	b.	Derive Schrodinger's time independent wave equations.	6M

OR

6	a.	Derive an expression for electrical conductivity in a metal using Quantum free electronic theory.	6M
	b.	Write its advantages over classical free electron theory.	6M

UNIT-IV

7	a.	What is Hall effect? Derive the expression for Hall voltage and Hall coefficient and write its applications	6M
	b.	What is extrinsic semiconductor?	6M

OR

8	a	Describe the classification of magnetic materials based on spin magnetic moments.	6M
	b	Explain soft and hard magnetic materials	6M

UNIT-V

9	a.	Describe Type I and Type II super conductors.	6M
	b.	Explain BCS theory of super conductors.	6M

OR

10	a.	What is Quantum confinement effect of nanomaterials?	6M
	b.	Explain ball milling technique for synthesis of nanomaterial	6M

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