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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech I Year II Semester (R16) Supplementary Examinations Dec 2017
ENGINEERING PHYSICS
(Common to ECE & CSE)

Time: **3 hours**Max. Marks: **60**(Answer all Five Units **5 X 12 = 60** Marks)**UNIT-I**

1. a Describe the formation of Newton's rings and derive the expression for diameter of bright and dark rings. 6M
 b Describe population inversion mechanics in the emission of laser radiation. 6M

OR

- 2 a What is the acceptance angle of an optical fibre and derive an expression for it. 6M
 b An optical fibre has a core refractive index of 1.44 and cladding refractive index of 1.40. Find its acceptance angle? 6M

UNIT-II

- 3 a Show that FCC is mostly closed packed structure than BCC and SC. 6M
 b Define Miller indices. Draw miller indices of planes (1 0 0), (1 1 1), (1 1 0). 6M

OR

- 4 a What is piezoelectric effect? Describe the production of ultrasonic waves by piezoelectric method. 6M
 b Write the properties of ultrasonic waves. 6M

UNIT-III

- 5 Describe the behaviour of a particle in a one dimensional infinite potential well in terms of its eigen values and functions. 12M

OR

- 6 a Describe the electrical conductivity in metals using classical free electron theory. 6M
 b Mention the merits and demerits of classical free electron theory. 6M

UNIT-IV

- 7 a What is Hall effect? Derive the expression for Hall voltage and Hall coefficient. 6M
 b Mention the expressions for Fermi energy levels for n- and p- type semiconductors. 6M

OR

- 8 a Describe the origin of magnetic moments in an atom. 6M
 b Explain the hysteresis of ferromagnetic materials. 6M

UNIT-V

- 9 a What is Josephson effect? Describe dc and ac Josephson effects in superconductor. 6M
 b What is Meissner effect in superconductor? 6M

OR

- 10 a Basic Principle of nano materials. 6M
 b Applications of nano materials. 6M