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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

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

ENGINEERING PHYSICS

(Common to CE, EEE, ME & AGE)

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 ring with necessary theory. 7M
b Explain how the wavelength of light sources is determined by forming Newton's ring. 5M

OR

- 2 a Explain the construction and working principle of He-Ne laser with suitable energy level diagram. 8M
b Write few advantages of He-Ne laser. 4M

UNIT-II

- 3 a Derive the packing factor of SC. 6M
b Derive the packing factor of BCC. 6M

OR

- 4 a State and explain Bragg's law of X-ray diffraction. 8M
b Find the ratio $d_{100}:d_{110}:d_{111}$ for a simple cubic structure. 4M

UNIT-III

- 5 a What is de Broglie Hypothesis? Derive the expression for de Broglie wavelength for an electron? 8M
b Explain the properties of matter waves. 4M

OR

- 6 a What are the salient features of classical free electron theory? Derive an expression for electrical conductivity in a metal. 8M
b Mention its drawbacks. 4M

UNIT-IV

- 7 a Explain N-type semiconductor. 6M
b Explain Drift processes in semiconductors. 6M

OR

- 8 a Describe the classification of magnetic materials based on spin magnetic moments. 8M
b What are soft and hard magnetic materials? 4M

UNIT-V

- 9 a What is critical temperature, critical magnetic field and critical current? 4M
b Prove that super conductor is a very good diamagnetic material. 8M

OR

- 10 a What is nanomaterial? Write the classification of nanomaterials. 4M
b Explain the basic principle of nanomaterials.. 8M

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