

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

B.Tech I Year I Semester Supplementary Examinations June-2024

ENGINEERING PHYSICS

(Common to CE, ME, AGE & EEE)

Time: 3 Hours

Max. Marks: 60

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

UNIT-I

- 1 a Illustrate Fraunhofer single slit diffraction and draw intensity distribution curve. CO1 L3 7M
b Differentiate step index and graded index fibers. CO1 L4 5M

OR

- 2 a Derive the relation between the various Einstein's coefficients of absorption and emission of radiation. CO1 L4 6M
b Discuss attenuation in optical fibers. CO1 L2 6M

UNIT-II

- 3 a Derive Bragg's law of X-ray diffraction. CO2 L3 6M
b Determine the frequency of the given crystal by Piezoelectric method. CO2 L3 6M

OR

- 4 a What are Miller indices? Illustrate the stepwise procedure to find Miller indices. CO2 L3 6M
b Deduce the packing factor of BCC. CO2 L4 6M

UNIT-III

- 5 a Explain the properties of matter waves. CO3 L2 4M
b Analyze the behavior of particle in a one dimensional infinite potential box or well in terms of Eigen values and function. CO3 L4 8M

OR

- 6 a Classify the solids into conductor, semiconductor and insulators based on band theory. CO3 L5 8M
b List the drawbacks of classical free electron theory. CO3 L1 4M

UNIT-IV

- 7 a Explain Diffusion processes in semiconductors. CO4 L2 5M
b Differentiate soft and hard magnetic materials. CO4 L5 7M

OR

- 8 a Define
i) magnetization ii) magnetic flux density iii) relative permeability. CO4 L1 6M
b Deduce the expression for intrinsic carrier concentration. CO4 L4 6M

UNIT-V

- 9 a Discriminate the types of superconductors. CO5 L5 8M
b Prove that super conductor is a very good diamagnetic material. CO5 L2 4M

OR

- 10 a Determine the basic principle of nanomaterials. CO5 L3 4M
b Illustrate the techniques available for synthesizing nanomaterials. CO5 L3 8M

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