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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

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

ADVANCED PHYSICS

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 60

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

UNIT-I

- 1 a Write brief note on experimental arrangement of Newton's rings 7M
b What is coherence? Explain spatial and temporal coherence 5M

OR

- 2 a Explain the interference in thin films by reflection 6M
b Distinguish between Fresnel's and Fraunhofer diffraction? 6M

UNIT-II

- 3 a Define absorption coefficient of sound and derive it? 7M
b What are the basic requirements of acoustically good hall? 5M

OR

- 4 a Write the properties of Ultrasonic waves. 6M
b Explain the detection methods of Ultrasonic waves. 6M

UNIT-III

- 5 a Define i) magnetization ii) magnetic flux density iii) magnetization iv) magnetic dipole 8M
b Discuss the applications of soft magnetic materials. 4M

OR

- 6 a Explain the phenomenon of electric polarization in dielectrics. Derive an expression for that. 8M
b Explain the important requirements of insulators. 4M

UNIT-IV

- 7 a Explain the construction and working principle of Nd:YAG laser with suitable energy level diagram. 6M
b Write the advantages of Nd:YAG laser. 6M

OR

- 8 a Explain the block diagram of fiber communication system? 8M
b An optical fibre has a core refractive index of 1.44 and cladding refractive index of 1.40. Find its Numerical Aperture. 4M

UNIT-V

- 9 a Explain why surface to volume ratio very large for nano materials? 6M
b What are the techniques available for synthesizing nanomaterials? 6M

OR

- 10 a How we synthesis nanomaterial by Sol-Gel technique? 8M
b Write advantages of sol-gel process? 4M

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