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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech I Year I Semester Supplementary Examinations Feb-2021**ADVANCED PHYSICS**

(Mechanical Engineering)

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

OR

- 2 a Distinguish between interference and diffraction? 6M
 b Distinguish between Fresnel's and Fraunhofer diffraction? 6M

UNIT-II

- 3 a Define Reverberation and Reverberation time? 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) magnetic moment and ii) magnetic susceptibility. 4M
 b Explain the origin of magnetic moments. 8M

OR

- 6 a Explain B-H curve of ferromagnetic material. 5M
 b What are soft and hard magnetic materials. 7M

UNIT-IV

- 7 a Explain the construction and working principle of He-Ne laser with suitable energy level diagram. 6M
 b Write few advantages of He-Ne laser. 6M

OR

- 8 a What is the acceptance angle of an optical fibre and derive an expression for it. 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 What is nanomaterial? Write the classification of nanomaterials. 6M
 b Explain the basic principle of nanomaterials. 6M
- OR**
- 10 a Discuss properties of nanomaterials? 6M
 b Write the applications of nanomaterials? 6M

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