

Code No: 151AE

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech I Year I Semester Examinations, July - 2021

APPLIED PHYSICS

(Common to ECE, EIE, ECM, CSBS, CSE(AIML), CSE(IOT))

Time: 3 hours

Max. Marks: 75

**Answer any five questions
All questions carry equal marks**

- 1.a) Explain in detail Compton effect.
b) Explain wave-particle duality. [7+8]
- 3.a) Derive Schrodinger's time independent wave Equation.
b) Explain in detail photo electric effect. [8+7]
- 2.a) Explain the formation of p-n junction diode with its characteristic curve.
b) Explain the principle of operation of a Bipolar junction transistor. [7+8]
- 4.a) Differentiate between Intrinsic and Extrinsic semiconductors.
b) Explain V-I characteristic of Zener diode. [7+8]
- 5.a) What is a LASER characteristic? What are the merits of a semiconductor laser?
b) Explain about Solar cell and its characteristics. [7+8]
- 6.a) Explain the principle and working of a Carbon dioxide (CO₂) laser.
b) Calculate numerical aperture of a material with acceptance angle of 60 degree in water. [9+6]
- 7.a) Explain Total internal reflection concept. How it will be useful in an optical fiber.
b) Explain Acceptance angle and Numerical aperture. [7+8]
- 8.a) Explain in detail Hysteresis loop in detail.
b) Mention eight applications of magnetic materials. [7+8]

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