

**R18**

**Code No: 151AE**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B.Tech I Year I Semester Examinations, October/November - 2020**

**APPLIED PHYSICS  
(Common to ECE, EIE)**

**Time: 2 hours**

**Max. Marks: 75**

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

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- 1.a) Discuss about importance of quantum mechanics in Science.
- b) Derive an expression for de Broglie's hypothesis. [7+8]
- 2.a) Estimate the energy of a particle in one dimensional potential box
- b) Explain Compton Effect. [7+8]
- 3.a) Discuss Fermi level variation in p-type semiconductor with charge carriers concentration and temperature.
- b) Evaluate I-V characteristics of Zener diode. [7+8]
- 4.a) Derive an expression for Hall coefficient.
- b) Discuss working of bipolar junction transistor (BJT). [7+8]
- 5.a) Explain principle, characteristics and working of Avalanche diode.
- b) Explain applications of solar cell in day to day life. [7+8]
- 6.a) Discuss about construction, principle and working of a solar cell.
- b) Evaluate working of various types of photo detectors. [7+8]
- 7.a) Derive an expression for acceptance angle of an optical fiber.
- b) Explain optical fiber as a dielectric wave guide. [7+8]
- 8.a) Explain any one method to determine the dielectric constant of a material.
- b) Discuss about electric current and continuity equations. [6+9]

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