Code No: 151AE

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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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