Code No: 152AE **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech I Year II Semester Examinations, November/December - 2020
APPLIED PHYSICS
(Electrical and Electronics Engineering)

Time: 2 hours **Max. Marks: 75**

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

1.a) What is the physical significance of wave function.
b) Derive the Schrodinger's time independent wave equation. [7+8]

2.a) Explain the V-I characteristics of a PN junction diode.
b) Describe the Hall effect in semiconductors. Drive the Hall Voltage and Hall coefficient. [7+8]

3.a) What is transistor?
b) Explain the working for a Common Base NPN transistor with a suitable circuit diagram.
c) Explain the V-I characteristics of Zener Diode. [4+6+5]

4.a) Explain the construction and working of Semiconductor laser.
b) What are the major requirements of a photodetector for a better performance? [8+7]

5.a) What are the sources of Noise in photodiode? State the various figure of merit parameters used to assess the noise performance.
b) Explain the working of PIN photodiode. [8+7]

6.a) What are the characteristics and properties of Laser Light?
b) What is Numerical Aperture of an optical fiber? What is its significance? [7+8]

7.a) Explain the construction and working of He-Neon Laser.
b) Give block diagram for optical communication through fiber optic cable. What are the advantages of optical communication? [7+8]

8.a) Define the terms magnetic moment (B), magnetization (M) and magnetic field (H). Obtain an expression relating to these quantities.
b) Describe the domain theory of ferromagnetism. [8+7]

---ooOoo---