

Code No. 8289/Inst.

**FACULTY OF SCIENCE**  
B.Sc. VI-Semester (CBCS) Examination, January 2021

Subject : Physics (Physics of Semiconductor Devices)

Time : 2 Hours

Paper – VIII-B DSE (E-2)

Max. Marks: 60

**PART – A**

Answer any three questions.

(3x5=15 Marks)

- 1 Forbidden Orbits
- 2 Life Time
- 3 Depletion Layer
- 4 Reverse Breakdown
- 5 Light Emitting Diode
- 6 Schottky Diode
- 7 Shockley Diode
- 8 Solar Cell

**PART – B**

Answer any three questions.

(3x15=45 Marks)

- 9 Derive the mathematical expression for intrinsic carrier concentration of a Semiconductor device.
- 10 Draw the energy band diagram of an extrinsic semiconductor and explain about each band.
- 11 Draw the band structure of an open circuited p-n junction and explain about it.
- 12 Explain forward and reverse resistance of a diode.
- 13 Write an essay on Tunnel Diode.
- 14 Derive the Transistor current equation in an active region.
- 15 Write an essay on Silicon Controlled Rectifier.
- 16 Draw the V-I characteristics of Uni junction Transistor (UJT) and explain about each region. What are the applications of UJT?

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