

B.Sc. Semester - 4 (NEP-2020) Examination

March/April-2026

PHY: Fundamentals of Semiconductor Device (Major-8)

Time: 2:00 Hours

Marks: 50

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

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- Que.1 Answer any 2 out of 3 of the following questions. (10)
- (1) Explain working, voltage and current of light emitting diode (LED) in detail.
 - (2) Explain operation and characteristics of Photo diode.
 - (3) Explain varactor diode in detail.
- Que.2 Answer any 2 out of 3 of the following questions. (10)
- (1) Explain cold-cathode gas diode.
 - (2) Explain hot-cathode gas diode.
 - (3) Explain application of thyatron.
- Que.3 Answer any 2 out of 3 of the following questions. (10)
- (1) Explain the construction and working of JFET.
 - (2) Discuss solar cell in detail with I-V characteristic.
 - (3) Explain the construction and working of UJT.
- Que.4 Answer any 2 out of 3 of the following questions. (10)
- (1) Explain Boolean theorem for single variable.
 - (2) Explain De morgan's theorem.
 - (3) Explain NAND gate as universal gate.
- Que.5 Answer any 5 out of 8 of the following (10)
- (1) What is multicolour LED?
 - (2) What is tunnel diode?
 - (3) What is meant by gas-filled tube?
 - (4) What is glow tube?
 - (5) What is the working principle of thermistor?
 - (6) Explain Pinch of Voltage (V_p).
 - (7) Explain analog and digital signal
 - (8) Convert 0.3125 decimal to binary number.
