

# Jashore University of Science and Technology

## Department of Physics

Bachelor of Science with Honours in Physics  
Second semester of Second year

Course no.: PHY 2207  
Assignment no.: 02

Course title: Semiconductor Physics  
Date: December 27, 2020

Last date of submission: January 04, 2021

Answer question 1 if your ID is an odd number otherwise answer question 2. Every student must answer question 3.

- 1
  - a. Write a short note on Czochralski (CZ) method of crystal growth.
  - b. Explain why an  $n$ -type semiconductor material is electrically neutral and not negatively charged.
- 2
  - a. Explain the basics of molecular beam epitaxy (MBE) with proper diagram.
  - b. Explain why an  $p$ -type semiconductor material is electrically neutral and not positively charged.
3. For the following figure calculate: (a)  $V_{\text{out(pk)}}$ , (b)  $V_{\text{dc}}$ , (c)  $I_L$ , (d)  $I_{\text{diode}}$ , (e) PIV for  $D_1$  and  $D_2$ , (f)  $f_{\text{out}}$ .

