

**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.: 01

Course title: Semiconductor Physics  
Date: September 20, 2022

**Last date of submission: October 10, 2022**

1. Explain the basics of molecular beam epitaxy (MBE) with proper diagram.
2. Explain the working principle of a *pn*p bipolar junction transistor with proper biasing.
3. Explain the construction and working principle of a *n*-channel JFET.
4. Sketch a *p*-channel enhancement-type MOSFET with the proper biasing. Describe the basic operation of an enhancement-type MOSFET.