

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2023

Ph.D-I Semester (PMS)

COURSE CODE (CREDITS): 21P1WPH131 (03)

MAX. MARKS: 35

COURSE NAME: Compound semiconductors

COURSE INSTRUCTORS: HAZ

MAX. TIME: 2 Hour

*Note: (a) All questions are compulsory.*

*(b) Marks are indicated against each question in square brackets.*

*(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems*

**Q1.** Compare the semiconducting properties of Si, GaAs, and InP with respect to their applications. [7-marks]

**Q2.** What is a phase diagram? Discuss the formation of inorganic semiconducting glasses with the help of such a diagram. [7-marks]

**Q3.** Write short notes on: (i) Ion implantation (ii) Microlithography. [7-marks]

**Q4.** With emphasis on silicon technology, discuss the importance of (i) plasma etching, (ii) thin film metallization [7-marks]

**Q5.** For an AlGaAs semiconducting thin film, what important information can be extracted from the following characterization data: (i) Glancing angle XRD (ii) I-V characteristics at different temperatures. [7-marks]