Department of Mechanical Engineering

Faculty of Engineering, Integral University, Lucknow

Laser Systems & Applications (IEME-014)

Assignment-03

Faculty : Shrish Bajpai

Problems : 07

Section : Unit III & IV

Due Date : March 25, 2015

1. What are excimer laser. Discuss its properties and applications.

2. Differentiate between homogenous & heterojunction PN junction laser. Calculate wavelength of emission of GaAs semiconductor laser whose bandgap is 1.44 eV.

3. Find the intensity of a laser beam of 20 mW power and having a diameter of 1.3 mm. Assume uniform intensity across the beam.

4. Laser beam has a band width of 2500Hz. What are the values of coherence time and coherence length ?

5. How laser is important for material processing? Discuss in detail.

6. Which are the lasers suitable for surgical operations and list out their merits and demerits ?

7. With a neat schematic diagram explain the principle of four level laser.