

## **Department of Mechanical Engineering**

### **Faculty of Engineering, Integral University, Lucknow**

Laser Systems & Applications (IEME-014)

Assignment-01

Faculty : Shrish Bajpai

Problems : 06

Section : Unit I & II

Due Date : January 31, 2015

1. A coherence length of light source is 25 millimetre & it's wavelength is 0.55 micron. Calculate frequency & coherence time.
2. Enlist the conditions in which laser works as continuous pulse mode. Show that this type of laser communication is suitable for time measurement.
3. Explain Spatial & Temporal coherence with suitable mathematical expression & diagrams.
4. Write short notes on optical pumping schemes with it's associated application in the different field of mechanical engineering.
5. Calculate coherence length of a laser beam (in air) for which the bandwidth is equal to the 3000 Hz. Use standard parameters & it's numerical values.
6. Obtain the mathematical relationship between size of the source & coherence of the field.