Government Engineering College, Bhuj

Engineering Physics **Assignment-3** **Semester-1**

Assignment submission date: 23-8-2025

Topic-5 LASER

1) List out and explain the properties of laser..
2) Explain with neat diagram of the process of absorption of light, spontaneous emission and stimulated emission of light.
3) What are Einstein's coefficients? Explain them.
4) State the necessary conditions for stimulated emission and explain the Einstein's A and B coefficient. Derive the relation between Einstein's A and B coefficients.
5) What is population inversion? Explain the necessity of population inversion for lasing action.
6) What is meant by pumping? Discuss in brief Optical pumping.
7) Explain the working of a resonant cavity and its role in laser operation.
8) Explain the production of lasers by Ruby Crystal.
9) Explain the construction and working of He-Ne (Helium-Neon) laser with the help of energy level diagram.
10) List the applications of laser light.
11) List the application of laser in industry.
12) List the applications of laser in medical.
13) Why does spontaneous emission dominate over stimulated emission at normal temperature?