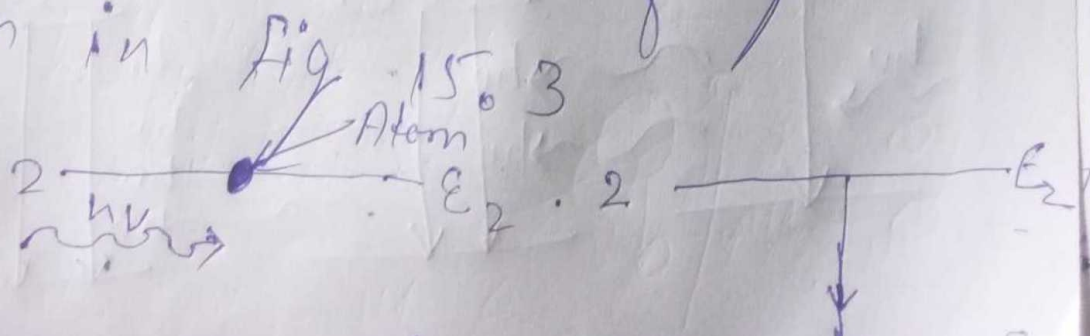


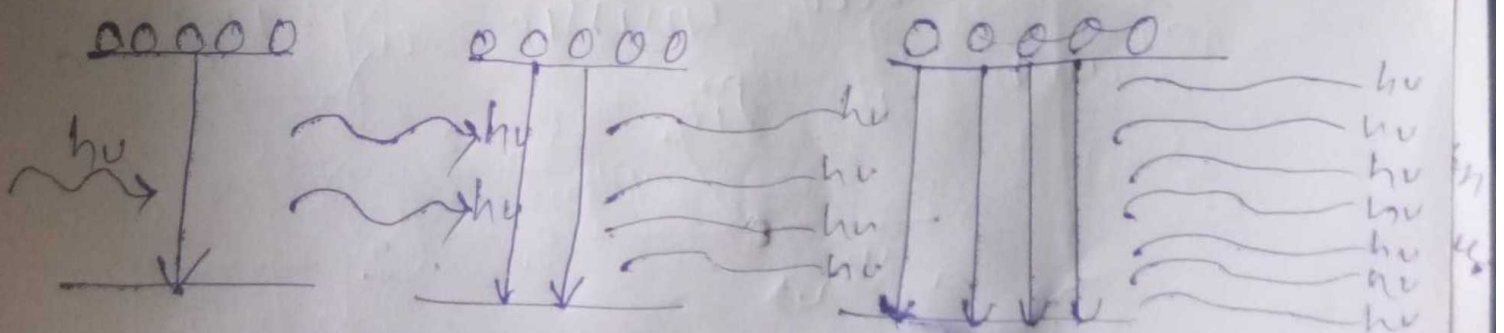
Ans 1 Laser The term Laser is an acronym of Light Amplification by Stimulated Emission of Radiation. It is a device that produces intense monochromatic coherent and unidirectional light beam. Laser beam is made of highly coherent photons.

Stimulated Emission :- when an atom is initially in the upper energy level the incident photon of energy $h\nu$ may induce a transition from E_2 or E_1 and produces a second photon of the same energy. This is known as Stimulated emission of light as shown in



Population Inversion

In thermal equilibrium, the number of atoms in the ground state (N_1) is generally much greater than in a higher energy state (N_2) ($N_2 < N_1$) so there is very little stimulated emission compared with absorption. Let by some means the atoms be initially excited so that are more atoms in the higher energy state E_2 than in the lower energy state E_1 , i.e. ($N_2 > N_1$) this is known as population inversion.



Pumping : the process by which population inversion is achieved is known as pumping. There are various types of pumping process eg optical electrical chemical heat etc but the most natural is the optical pumping.