CL37_Q1. Why a two level system is not suitable to produce laser action at thermal equilibrium?

CL37_Q2. Bring out the difference between three level and four level lasers.

CL37_Q3. Draw the energy level diagram and explain how 4-level laser systems work.

CL37_Q4. A system comprises of three energy levels E_1, E_2 ($>E_1$) and E_3 ($>E_2$). An electron in the state E_3 is capable of undergoing spontaneous transition to the levels E_1 or E_2. The lifetime of electron in state E_3 is 2.5µs. If only transition from E_3 or E_2 was permitted then the lifetime of this electron would have been 3.3µs. What would have been the lifetime of this electron if the only transition permitted was from E_3 to E_1?