Tutorial Sheet-8

[Laser Technology and Applications, 16B1NPH533, Odd Semester 2020]

1. [CO1] Discuss the essential requirements and various steps involved for producing laser action.
2. [CO4] Name the active material in Ruby laser. Draw a neat labelled diagram of a Ruby laser.
3. [CO4] What is the role of Ne atoms in He-Ne laser? Explain the working of He-Ne laser with a suitable diagram.
4. [CO4] Which is the prominent wavelength emitted by Ruby laser?
5. [CO4] Explain with the help of an appropriate energy level diagram, how stimulated emission results from electron impact pumping in He-Ne laser.
6. [CO1] Can we obtain light amplification in the absence of stimulated emission?
7. [CO4] Why gas lasers emit light which is more unidirectional and monochromatic as compared to solid state lasers?
8. [CO4] What are the roles of nitrogen and helium gases in carbon dioxide laser?
9. [CO4] Justify, why lasers based on the mixture of argon and krypton gases are used for multicolour displays?

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