**Practical Laser**

1. For a Gaussian beam propagating in free space, the spot size *w*(*z*) will be at a minimum value *w*0 at one place along the beam axis, known as the *beam waist*
2. What is depth of focus of the laser beam mean .
3. What is meant by 1/e2 beam width for Gaussian profile?
4. Why knowledge of photo-detectors and their use is extremely important for the laser technician.
5. What is the responsivity of the photodetector .
6. Define quantum efficiency of photodetector.
7. Write about "response time", Rise time
8. Why we need to focus the beam of the laser?
9. what is the effect of
	* 1. Beam expander in the value of speed penetration and cutting?
		2. The thickness of the sample on Vp & Vc.
10. mention the application of refractive index in medicine.
11. Why do we use the laser beam to calculate the distance?
12. What is the principle of operation of an optical fiber.
13. Why are [fiber-optic cables used in communications](https://en.wikipedia.org/wiki/Fiber-optic_communication),
14. What are the differences between single and multi-mode fiber optic cable.
15. Write about the cutback method
16. Why the core region has a refractive index larger than the refractive index of the cladding region?
17. In an optical fiber, the concept of numerical aperture is applicable in describing the ability of -------------
18. Light collection b- light Scattering c- light Dispersion d- light polarization

1. Laser pulses can be generated by [Q switching](http://www.rp-photonics.com/q_switching.html) , ---------------- and ---------------.
2. Define **pulse repetition time**, **pulse repetition rate**, "**duty cycle**" .
3. What is the reason for laser beam divergence?
4. What is the mean property of the He-Ne laser?
5. A laser has a divergence of 0.2 mill radians (mrad):
	1. If the beam cross-section is circular, what is the solid angle of the beam?
	2. If the power of the beam is 5 mW, what is the intensity of a point at 2 m distance from the laser?
6. Define Lambert and beer Law.
7. Write about step-index fiber.
8. What is the Numerical aperture (NA) mean .
9. write about Medical Applications of L D V .