

IMPORTANT QUESTIONS

- Q1. Give out the details of Electromagnetic spectrum used for optical communication.
- Q2. Briefly discuss, with the aid of suitable diagrams, the following concepts in optical fiber transmission:
- The Evanescent field;
 - Goos-Haenchen shift;
 - Mode coupling;
- Q3. Draw the block diagram of optical communication system and explain each block in detail.
- Q4. Describe with the aid of simple ray diagram:
- the multimode step index fiber;
 - the single-mode step index fiber;
 - Compare the advantages and disadvantages of these two types of fiber for use as an optical channel.
- Q5. What are the advantages of optical fibers in communication system?
- Q6. With the help of ray theory, Explain propagation in optical Fiber.
- Q7. Explain Snell's law. What is numerical aperture? Derive an expression for it.
- Q8. Discuss absorption loss in optical fiber with relative to intrinsic and extrinsic absorption mechanism
- Q9. Briefly explain the basic laws of ray optics? What do you mean by critical angle & total internal reflection?
- Q10. Briefly describe linear scattering losses in optical fibers with regard to:
- Raleigh scattering
 - Mie scattering
- Q11. Compare stimulated Brillouin and stimulated Raman scattering in optical fibers, and indicate the way in which they may be avoided in optical fiber communication
- Q12. Discuss various types of couplers in detail .
- Q13. Explain what is meant by graded index optical fiber, giving an expression for the possible refractive index profile? Using simple ray theory concepts, discuss the transmission of light through fiber. Indicate the major advantage of this type of fiber with regard to multimode propagation
- Q14. Explain the basic principle of operation and construction of Laser . Also derive the equation for various types of efficiencies and how coupling efficiency can be improved when laser is used as light source.
- Q15. Discuss the lens coupling to LEDs to optical fibres and outline the various techniques employed.
- Q16. Draw and explain any two type of LED structure.
- Q17. What is meant by optical and electrical confinement in a LASER? How is it achieved? Explain.
- Q18. Discuss the semiconductor injection laser? How is injection laser coupled to a fiber?
- Q19. Explain the following w.r.t detectors: -
- Quantum efficiency
 - Responsivity
 - Cut of wavelength
 - Noise in Pin Photo diode
- Q20. Explain with the help of diagram working of PIN and APD photo diode detector. Also give various APD characteristics.
- Q21. Outline the common LED structures for optical fiber communications discussing their relative merits and drawbacks
- Q22. Discuss in detail internal and external quantum efficiency of LED
- Q23. What are the requirements for good detector design?
- Q24. What do you understand by splicing loss in a fiber?
- Q25. What are connectors? Discuss their different types with usage and application.