

QUESTION BANK FOR TERM TEST-1 (IA-1) 2026

Subject: Applied Physics

TOPICS: LASER, FIBER OPTICS COMMUNICATION, INTERFERENCE:

- 1) What is laser? Explain how laser light is differing from ordinary light?
- 2) What is laser? Comments on Intensity & Directionality of laser beam?
- 3) Distinguish between spontaneous & stimulated emission of radiation?
- 4) Distinguish between Step index & Graded index optical fiber?
- 5) Distinguish between Single mode & Multimode optical fiber?
- 6) What is population inversion & Pumping? Explain different types of pumping methods?
- 7) What is use of optical resonator in laser? Explain plane parallel optical resonator?
- 8) Draw the labeled diagram of He-Ne laser with energy level diagram? Comment on its efficiency? What is the role of He ions? Give its applications?
- 9) What is fiber optics communication? Explain the principle of TIR used in fiber optics communication?
- 10) What is numerical aperture and acceptance angle of optical fiber? Derive its expression for step index optical fiber?
- 11) Explain the following terms in case of optical fiber
1) Numerical aperture
2) Acceptance angle. 3) Normalized frequency 4) Modes of propagation.
- 12) What is thin film? Explain the formation of colors with in thin film when illuminated by sunlight?

Note: One numerical will be asked on fiber optics communication.