

**PG-393**

**MPHY-24**

**M.Sc. DEGREE EXAMINATION –  
JUNE 2019.**

Second Year

Physics

**LASER AND FIBRE OPTICS**

Time : 3 hours

Maximum marks : 75

**PART A — (5 × 3 = 15 marks)**

Answer any FIVE questions.

All questions carry equal marks.

1. What is meant by pumping action and population inversion?
2. Define magneto optic effect.
3. Define acceptance angle.
4. What is modulation?
5. What is an LED display?

6. What are Einstein's coefficients?
7. Mention few applications of LEDs.
8. Give examples of few electro optic materials.

PART A — (5 × 12 = 60 marks)

Answer ALL questions, choosing either (a) or (b).

9. (a) Write short notes on
  - (i) Mode locking
  - (ii) Q-switching.

Or

  - (b) Give the details of the contraction and working of CO<sub>2</sub> laser with its models of vibration.
10. (a) Explain double refraction at a boundary of a solid.

Or

  - (b) Explain reflection and refraction at the boundary of an absorbing medium of a solid.
11. (a) Explain the propagation of light through an optical fibre.

Or

  - (b) Explain fiber Fabrication Techniques.

12. (a) Explain briefly about distributed feedback laser.

Or

(b) Write short notes on

(i) Gain guided injection laser.

(ii) Quantum Well lasers.

13. (a) Explain the architecture and working of plasma panel display.

Or

(b) What are liquid crystals? Explain chemical properties of it.

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