

PHY: Fundamentals of Optical and Electronic Communications (Major-5)

Time: 2:00 Hours

Marks: 50

Instructions:

1. All questions are compulsory.
 2. Figures to the right indicate marks.
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Que-1 Answer any 2 out of 3 of the following questions. (10)

- 1) Explain the critical angle of propagation for an Optical Fiber.
- 2) Discuss the Application of an Optical Fiber.
- 3) What is the Acceptance angle for an Optical Fiber? Derive its expression.

Que-2 Answer any 2 out of 3 of the following questions. (10)

- 1) Explain the principle and working of a He-Ne laser.
- 2) Explain "Population inversion" in the production of LASER
- 3) Explain the construction and working of Ruby LASER.

Que- 3 Answer any 2 out of 3 of the following questions. (10)

- 1) Write a short note on Phase Reversal
- 2) Discuss the Classification of Amplifiers.
- 3) Explain A.C and D.C load lines

Que- 4 Answer any 2 out of 3 of the following questions. (10)

- 1) Explain the Amplitude Modulation.
- 2) Explain the AM Diode detector.
- 3) What is Modulation? Discuss the need for Modulation

Que- 5 Answer any 5 out of 8 of the following (10)

- 1) What is single mode Fiber?
- 2) Describe the block diagram of the optical fiber communication system.
- 3) Define Stimulated emission.
- 4) What is the Optical Resonance cavity?
- 5) Define frequency response and bandwidth.
- 6) What is an operating point in single-stage amplifiers?
- 7) Write an advantage of Frequency Modulation.
- 8) Discuss the Demodulation process.
