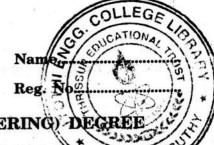
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SIXTH SEMESTER B.TECH. (09 SCHEME) (ENGINEERING) EXAMINATION, APRIL 2015

EC/PTEC 09 605-OPTICAL COMMUNICATION

Time: Three Hours

Maximum: 70 Marks

Part A

Answer all questions.

Each question carries 2 marks.

- 1. What is diffraction?
- 2. What is the effect of reflection in single mode fiber?
- 3. What is the advantage of semiconductor LASER over LED?
- 4. What is the advantage of IM direct detection system?
- 5. What is SPE in SONET?

 $(5 \times 2 = 10 \text{ marks})$

Part B

Answer any **four** questions. Each question carries 5 marks.

- 6. Differentiate between Step index and Graded index fiber.
- 7. What is the problem with PIN diode? How it is overcome?
- 8. Explain about ISI in IM direct detection system.
- 9. Explain the operation of WDM.
- 10. Explain about RAMAN amplifier.
- 11. Explain the term quantum limit to receiver sensitivity.

 $(4 \times 5 = 20 \text{ marks})$

Part C

Answer all questions.

12. (a) Bring about characteristics of single and multimode fibers.

Or

- (b) Derive the Maxwell solution for step index fiber.
- 13. (a) Describe the structure and operation of LD.

Or

(b) Discuss in detail the operation and structure of PIN diode.

Turn over

14. (a) Explain the operation and features of heterodyne IMDD system.

Or

- (b) Describe briefly the factors affecting the performance of IMDD system.
- 15. (a) Discuss in detail the principle of operation of semiconductor amplifier and Brillouim amplifier.

Or

(b) Explain the working of DWDM and optical networks.

 $(4 \times 10 = 40 \text{ marks})$