

C 61441

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Name.....

Reg. No.....



SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
APRIL 2014

(2009 Scheme)

EC/PTEC 09 605—OPTICAL COMMUNICATION

(Regular/Supplementary/Improvement)

Time : Three Hours

Maximum : 70 Marks

Part A

*Answer all the questions.
Each question carries 2 marks.*

1. What is multimode fiber ?
2. State the reason for dispersion in optical fibers.
3. What is driving current required to light an LED ?
4. What factors affect the receiver sensitivity ?
5. What is STS -1 in SONET ?

(5 × 2 = 10 marks)

Part B

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

6. Explain about the polarization in optical fibers.
7. State the importance of the parameters responsivity and quantum efficiency in optical fibers.
8. Explain about equalization.
9. Explain the merits of optical networks.
10. Explain the operation of semiconductor amplifier.
11. How does performance of LED compare with that of semiconductor LASER's ? What are their respective applications.

(4 × 5 = 20 marks)

Turn over

Part C

*Answer section (a) or section (b) of each question.
Each question carries 10 marks.*

12. (a) Derive the solution of Maxwell's equation for step index optical fiber.

Or

- (b) Discuss in detail (i) propagation of waves in single and multimode fibers ; (ii) dispersion shifted and dispersion flattened fibers.

13. (a) Discuss the structure and operation of LASER.

Or

- (b) Describe the structure and operation of APD.

14. (a) Discuss the operation of intensity modulated direct detection system.

Or

- (b) Explain about (i) degradation due to fiber dispersion ; and (ii) degradation due to non-linear effects in fiber propagation.

15. (a) Describe the operation of SDH.

Or

- (b) Discuss in detail the operation of WDM and Brillouim amplifiers.

(4 × 10 = 40 marks)