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LIB/Anna

Reg. No. :

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Question Paper Code : 41190

M.E. DEGREE EXAMINATION, APRIL/MAY 2015.

Second Semester

Computer and Communication Engineering

CP 9221/CP 921 — OPTICAL FIBER COMMUNICATION AND NETWORKING

(Regulation 2009)

Time : Three hours

Maximum : 100 marks

(Codes/Tables/Charts to be permitted, if any, may be indicated)

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is a fiber optic wave?
2. Define four-wave mixing.
3. Write short notes on semiconductor materials.
4. What is a timing jitter?
5. Define light wave system.
6. What is a multichannel system?
7. Write short notes on dispersion compensation.
8. Define fiber soliton.
9. What is an optical network?
10. Define MAC protocols.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain in detail about step-index fibers. (8)
- (ii) Write brief notes on fiber loss. (8)

Or

- (b) (i) Describe material absorption in detail. (8)
- (ii) Discuss briefly about nonlinear phase modulation. (8)

12. (a) (i) What is feedback and laser threshold? Explain. (8)
(ii) Explain in detail about Source—Fiber Coupling. (8)

Or

- (b) (i) Describe receiver noise mechanisms in detail. (8)
(ii) Discuss briefly about amplifier design. (8)
13. (a) (i) Write brief notes on heterodyne keying formats. (8)
(ii) Discuss briefly about tunable optical filters. (8)

Or

- (b) (i) Explain in detail about channel multiplexing. (8)
(ii) Describe direct-sequence encoding. (8)
14. (a) (i) Discuss briefly about post-compensation techniques. (8)
(ii) What is broad band compensation? Explain. (8)

Or

- (b) (i) Describe in detail about soliton transmitters. (8)
(ii) Write brief notes on inter channel collisions. (8)
15. (a) (i) Discuss briefly about system network evaluation. (8)
(ii) Describe MAN layered architecture broadcast. (8)

Or

- (b) (i) What are test beds? Explain. (8)
(ii) Write brief notes on wavelength routing networks. (8)