F 3240 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2014

Eighth Semester

Branch : Electronics and Communication Engineering

EC 010 803—LIGHT WAVE COMMUNICATION (EC)

(New Scheme—2010 Admission—Supplementary)

Time : Three Hours Maximum : 100 Marks

Part A

1. What do you mean by SI and GI fibers ?
2. Briefly explain about ray optics.
3. What is Scattering Loss ?
4. What is attenuation ? What are the different type of attenuation ?
5. What is the principle of operation of APD ?
6. Explain the terms Quantum Efficiency and Responsivity.
7. What is the principle of operation of Optical amplifiers ?
8. What is MZ optical modulator ?
9. What do you mean by wavelength switching networks ?
10. Give an account of optic link power budget with an example.

(10 × 4 = 40 marks)

Part B

Answer **all** *questions.*
Each full question carries 12 *marks.*

11. (a) Explain V number.

    (b) Derive an expression for Critical angle, acceptance angle and numerical aperture.

(6 + 6 = 12 marks)

Or

12. (a) Differentiate between Single and Multimode fiber.

    (b) Explain Snell's Law and Total Internal Reflection.

(5 + 7 = 12 marks)

Turn over

13 (a) Write notes on fiber couplers.

(b) With neat diagram explain optic fiber Slicers.

(5 + 7 = 12 marks)

Or

14. What is Dispersion ? Bring out the difference between Chromatic dispersion and Intermodal dispersion with neat sketches.

(12 marks)

15. Explain the working principle and structure of LASER. (12 marks)

Or

16. Explain the working principle of LED, LED structures and characteristics. (12 marks)

17. Explain in detail about Erbium Doped Fiber Amplifiers.

Or

18. (a) Write short notes on Semi-conductor Optical Amplifiers.

(b) Describe fiber amplifiers and its types.

(6 + 6 = 12 marks)

19. Describe link power budget and rise time budget analysis. (12 marks)

Or

20. Explain Optical Networks ? Compare wavelength routing and switching networks.

(12 marks)

[5 × 12 = 60 marks]