G 1700

Reg. No...............................

Name.................................

B.TECH. DEGREE EXAMINATION, MAY 2016

Eighth Semester

Branch : Electronics and Communication Engineering

EC 010 803—LIGHT WAVE COMMUNICATION (EC)

(New Scheme—2010 Admission onwards)

[Regular/Supplementary]

Time : Three Hours   Maximum : 100 Marks

Part A

*Answer **all** questions.*
Each question carries 4 marks.

1. Give the expression for calculating the : (a) Critical angle ; (b) NA ; and (c) Acceptance angle in air for the fibre.

2. Explain the phenomenon of inter symbol interference.

3. Define quantum efficiency of a photo detector.

4. Draw the energy level diagrams for erbium doped silica fiber laser.

5. List the different network topologies.

6. Write short note on SI fibres.

7. Distinguish between intrinsic absorption and extrinsic absorption.

8. Explain the LED characteristics. Compare the characteristics of surface emitters and edge emitters.

9. Compare the gain-bandwidth characteristics of different optical amplifiers.

10. Compare wavelength routing and switching network.

(10 × 4 = 40 marks)

Part B
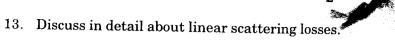
*Answer **all** questions.*
Each question carries 12 marks.

11. Write short note on single mode fibres. Compare the step index profiles of various designs.

Or

12. Explain the key terms in Ray theory transmission-critical angle and total internal reflection.

Turn over

13. Discuss in detail about linear scattering losses.

Or

14. Explain different types of fibre connectors.

15. With a neat schematic explain GaAs homo junction injection laser with a Fabry Perot Cavity.

Or

16. Explain about the different types of semiconductor photo diodes without internal gain.

17. Explain in detail the operation of Machzender interferometer.

Or

18. Compare wave guide amplifiers and fibre amplifiers.

19. Discuss link power budget and rise time budget analysis.

Or

20. Explain wavelength switching network architecture employing a multi-granular optical cross connect.

(5 × 12 = 60 marks)