B.TECH. DEGREE EXAMINATION, MAY 2014
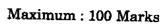
Eighth Semester

Branch : Electrical and Electronics Engineering

EE 010 804 L06 – OPTO ELECTRONICS (Elective III) [EE]

(New Scheme–2010 Admissions)

[Regular]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 3 marks.

1. What is group Velocity?

2. What is meant by internal quantum efficiency?

3. Define the term "cut off wavelength".

4. What is meant by equalization in fiber optic receivers?

5. What are the different types of optical amplifiers?

$(5 \times 3 = 15 \text{ marks})$

Part B

Answer all questions.
Each question carries 5 marks.

6. Differentiate between step index and graded Index fibers.

7. Explain the principle of operation of LED.

8. Write short notes on Photo Transistors.

9. What is amplifier design of receiver section in OFC?

10. Explain bragg gratings for strain and temperature sensors.

$(5 \times 5 = 25 \text{ marks})$

Part C

Answer all questions.
Each full question carries 12 marks.

11. Describe the different modes of propagation in an Optical Fiber Communication.

Or

12. With necessary diagrams, explain in detail about attenuation and dispersion mechanism in OFC.

Turn over

13. With neat schematic, explain the ELEDs and SLEDs structures.

Or

14. Explain in detail about LASER diodes and LASER structures.

15. Write short notes on :

    (a) PIN Photodiode.

    (b) Intrinsic and extrinsic Responsivity.

    (c) Avalanche Photo diodes.

Or

16. Explain link power budget and rise time budget analysis.

17. (a) With neat diagram, explain the fiber optic receivers and data patterns.

    (b) What are Spackle noise and Reflection noise ?

Or

18. Write short notes on :

    (a) Inter Symbol Interference.

    (b) **Eye Diagram.**

19. Explain in detail about different type of Optical amplifiers with necessary diagrams.

Or

20. Write short notes on :

    (a) Optical logic gates.

    (b) Optical computing concepts.

    (c) WDM.

(5 × 12 = 60 marks)