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Question Paper Code: 21301

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2018.

Sixth/Seventh Semester

Electronics and Communication Engineering

EC 6016 — OPTO ELECTRONIC DEVICES

(Common to : Medical Electronics)

(Regulations 2013)

Time: Three hours

Maximum: 100 marks

Answer ALL questions.

PART A — $(10 \times 2 = 20 \text{ marks})$

- 1. Define Interference.
- 2. What do you mean by light coherence?
- 3. State few applications of LED.
- 4. What are the advantages of LASER.
- 5. Name few optical detection devices.
- 6. Illustrate the operational principle of Photo Detector.
- 7. Compare Analog and Digital Modulation techniques.
- 8. State the principle of magneto optic devices.
- 9. What are guided wave devices?
- 10. Infer the practical applications of OEIC,

PART B — $(5 \times 13 = 65 \text{ marks})$

11. (a) Analyze and review the physics of semiconductor which determines the functionality of opto-electronic devices.

Or

(b) Define various criteria for light sources and discuss about the necessary requirements of semiconductor.

12. (a) Discriminate the different LED structures based on its construction and operating principle.

Or

- (b) Explain the light amplification process in LASER with neat diagram.
- 13. (a) Explain the construction and working principle of photo detectors.

Or

- (b) Discuss the operation PIN diode and Avalanche photo diode and state its applications.
- 14. (a) Discuss in detail about electro optic and acousto optic modulators and their applications.

Or

- (b) Distinguish Electro optic phase modulation and Electro optic Amplitude Modulation.
- 15. (a) Explain in detail the process of hybrid and monolithic integration in OEIC.

. Or

(b) Paraphrase the operation and applications of guided wave devices in Integrated Transmitters and Receivers.

PART C —
$$(1 \times 15 = 15 \text{ marks})$$

16. (a) Appraise the prospects for optical interconnects.

Or

(b) Evolve a schematic for an optical communication system for long distance high bitrate information transfer using suitable opto electronic components and explain each.