Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 91433

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Sixth 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 (10×2=20 Marks)

1. Define Doping.
2. Give an Example for Semiconductor Junction Device.
3. Determine the outcome of Absorption process.
4. Why LEDs are operated at lower current densities than LASER ?
5. Illustrate the operational principle of Photo Detector.
6. Interpret the process of Impact Ionization.
7. Define Modulation and list its types.
8. Explain birefringence phenomenon.
9. Infer the practical applications of OEIC.
10. Determine the criteria for selection of the choice of materials in OEIC.

PART – B (5×13=65 Marks)

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

(OR)

b) Discuss about various optical sources and its operational principle.

12. a) Analyse the electroluminescent process in detail.

(OR)

b) Discriminate the different LED structures based on its construction and operating principle.

13. a) Elucidate the operation of a Junction Photo Diode with neat diagram.

(OR)

b) Explain the operation of Avalanche Photo Diode with necessary diagram.

14. a) Draw the schematic of typical optical fiber communication system and demonstrate the need of wavelength division switching system with suitable diagrams.

(OR)

b) Distinguish Electro Optic Phase Modulation and Electro Optic Amplitude Modulation.

15. a) Paraphrase the operation and applications of guided wave devices in Integrated Transmitters and Receivers.

(OR)

b) Explain in detail the process of hybrid and monolithic integration in OEIC.

PART – C

(1×15=15 Marks)

16. a) Appraise the prospects for optical interconnects.

(OR)

b) Summerize the applications of LASER in medicine.
