Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **14EI2023** | **Duration :** | **3hrs** |
| **Sub. Name :** | **OPTO - ELECTRONICS AND LASER BASED INSTRUMENTATION** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Compare twisted pair cables with coaxial cables. | CO1 | 5 |
| b. | How is a photo diode modified as a PIN diode and RAPD diode which is used as detectors for Fiber otpic transmission. | CO1 | 15 |
| **(OR)** | | | | |
| 2. | a. | Compare LED with LASER source. | CO1 | 5 |
| b. | Discuss in detail the construction and working of surface emitting and edge emitting LED. | CO1 | 15 |
|  |  |  |  |  |
| 3. | a. | Differentiate between single mode and multimode fiber. | CO1 | 5 |
| b. | Discuss the advantages of fiber optic sensors and also explain how fiber optic cables are used in measuring Temperature, Pressure and Liquid level. | CO1 | 15 |
| **(OR)** | | | | |
| 4. |  | How is Temperature, Pressure and Current measured using optical sensors? | CO1 | 20 |
|  |  |  |  |  |
| 5. | a. | Differentiate spontaneous emission and simultaneous emission. | CO2 | 5 |
| b. | Explain the construction and working of Liquid LASER. | CO2 | 15 |
| **(OR)** | | | | |  | (OR) |
| 6. |  | Discuss in detail on any one Gas type LASER and solid type LASER. | CO2 | 20 |
|  |  |  |  |  |
| 7. |  | Explain the different types of LASER interaction with tissues. Also discuss in detail the application of LASER in medicine. | CO3 | 20 |
| **(OR)** | | | | |  | (OR) |
| 8. |  | Elaborate the application of LASER in Material Processing. | CO3 | 20 |
|  |  | **Compulsory:** |  |  |
| 9. |  | What is holography? Explain in detail the construction and reconstruction of hologram. | CO3 | 20 |