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

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

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| **Code :** | **14EC2091** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ELECTRON DEVICES AND 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. | List the properties of semiconductor. | CO1 | 4 |
| b. | Distinguish between intrinsic and extrinsic semiconductor. | CO1 | 4 |
| c. | Explain the construction, working principle and applications of PN diode with necessary diagrams. | CO1 | 12 |
| **(OR)** | | | | |
| 2. |  | Explain the enegy band structure of open circuited PN junction and derive the expression of contact potential V0 with a neat sketch. | CO1 | 20 |
|  |  |  |  |  |
| 3. | a. | Explain the construction and working of full wave rectifier and mathematically prove that the efficiency of rectification is 81% and ripple factor is 0.48. | CO1 | 15 |
| b. | Compare full wave center tapped and bridge wave rectifier. | CO1 | 5 |
| **(OR)** | | | | |
| 4. | a. | What is hall effect? Derive the expression of hall voltage and mention the significance of hall effect. | CO1 | 10 |
| b. | Explain in detail about the construction and working principle of  N-channel JFET. | CO1 | 10 |
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| 5. | a. | Explain in detail the construction, equivalent circuit, working and characteristics of SCR. | CO1 | 12 |
| b. | Discuss in detail about the construction and working of LED. | CO1 | 8 |
| **(OR)** | | | | |
| 6. | a. | Illustrate the importance of transducers and explain the different types of transducers in detail with examples. | CO2 | 15 |
| b. | Discuss in detail about the construction of Gunn diode. | CO1 | 5 |
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| 7. | a. | Explain the construction and operation of enhancement MOSFET with its VI characteristics. | CO2 | 12 |
| b. | Justify the need of digital instruments with examples. | CO3 | 8 |
| **(OR)** | | | | |
| 8. | a. | Explain in detail about the digital multimeter with its block diagram. | CO2 | 12 |
| b. | Explain the construction and operation of a Varactor diode with neat diagrams. | CO1 | 8 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Discuss in detail about microprocessor based measurements. | CO2 | 10 |
| b. | Explain the block diagram of digital data-acquisition system and its operation. | CO3 | 10 |