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

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**End Semester Examination – Nov/Dec – 2018**

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| **Code:** | **14EC2091** | **Duration :** | **3hr** |
| **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. | With a neat sketch, explain the energy band structure of open circuited p-n junction and derive the expression of junction potential energy E0. | CO1 | 15 |
| b. | Draw the characteristics of PN diode under forward and reverse biased condition. | CO1 | 5 |
| (OR) | | | | |
| 2. | a. | With a neat diagram, explain the quantitative theory of p-n diode and derive the expression of diode current equation. | CO1 | 15 |
| b. | Describe the current components in a p-n diode with neat diagram. | CO1 | 5 |
|  |  |  |  |  |
| 3. | a. | With a circuit diagram and necessary waveforms describe the operation of a full wave rectifier and derive the expression for ripple factor and rectification efficiency. | CO1 | 15 |
|  | b. | Compare half wave rectifier and full wave rectifier. | CO1 | 5 |
| (OR) | | | | |
| 4. | a. | Derive the expression of RMS value, efficiency and ripple factor for  a half wave rectifier with necessary diagrams. | CO1 | 15 |
| b. | Mention the significance of the Hall Effect. | CO1 | 5 |
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| 5. | a. | Explain the operation of JFET with necessary circuit diagram. Also mention the applications of the same. | CO1 | 15 |
| b. | Give the comparison between BJT and JFET. | CO1 | 5 |
| (OR) | | | | |
| 6. | a. | With neat diagram explain the construction, operation and characteristics of Uni junction transistor. | CO1 | 15 |
| b. | State the applications of thyristors. | CO1 | 5 |
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| 7. | a. | With neat diagram explain the construction and operation of LED. Also mention its advantages. | CO2 | 15 |
| b. | Compare LED and LCD. | CO2 | 5 |
| (OR) | | | | |
| 8. | a. | Explain the construction and operation of a Gunn diode with neat diagrams in detail. | CO2 | 10 |
| b. | With neat diagram explain the construction and operation of a Varactor diode. | CO2 | 10 |
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|  | | **Compulsory**: |  |  |
| 9. | a. | With neat diagram explain the working of digital voltmeter and multimeter. | CO3 | 10 |
| b. | Write short notes on computer controlled test systems. | CO3 | 10 |