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



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

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| **Code :** | **16NT3002** | **Duration :** | **3hrs** |
| **Sub. Name :** | **NANOELECTRONICS** | **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. | Explain about the tunnelling element technology (Tunnel Diode) and describe about Resonant Tunnelling diode with its I-V characteristics. | CO2 | 20 |
| (OR) | | | | |
| 2. | a. | Compare about the various scaling methods followed for the design of short channel transistor. | CO1 | 10 |
| b. | Discuss about calorimetric sensors with neat diagram. | CO1 | 10 |
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| 3. | a. | Explain about Quantum cellular automate with various configuration includes wire, inverter and other logical gates. | CO1 | 20 |
| (OR) | | | | |
| 4. | a. | Discuss in detail about the HEMT with its schematic diagram. | CO2 | 20 |
|  |  |  |  |  |
| 5. | a. | Explain in detail about the gas sensitive FETs with neat diagram. | CO2 | 20 |
| (OR) | | | | |
| 6. | a. | Explain the principles and operation of SAW and BAW based devices for sensor applications. | CO1 | 10 |
| b. | Discuss in detail about the molecular electronics with required sketch. | CO2 | 10 |
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| 7. | a. | Elaborate the working principle of 3D Printer with neat diagram. | CO1 | 10 |
| b. | Elaborate the working principle of Nano CMOS with its circuit diagram. | CO1 | 10 |
| (OR) | | | | |
| 8. | a. | Describe in detail about the various carbon nanotubes based sensors  with its neat diagram. | CO2 | 20 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Explain the working of Single Electron Transistor with neat diagram and with the help of Coulomb blockade. | CO2 | 20 |