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

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

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| **Code :** | **14EC2075** | **Duration :** | **3hrs** |
| **Sub. Name :** | **NANO ELECTRONICS** | **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. | Discuss fabrication techniques of nanostructures. | CO1 | 10 |
| b. | Describe the SET and its application in medical field. | CO2 | 10 |
| (OR) | | | | |
| 2. | a. | Compare and contrast conventional MOSFET and nano MOSFET. | CO2 | 5 |
| b. | Write short notes on the fabrication of tunneling element. | CO1 | 10 |
| c. | Analyse the advantages of tunnel diode over pn diode. | CO2 | 5 |
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| 3. | a. | Discuss the need for scaling and its effects. | CO2 | 5 |
| b. | Enlist the application of nanoelectronics in biomedical field. | CO2 | 5 |
| c. | Differentiate quantum dot and nanoparticle. | CO1 | 5 |
| d. | Illustrate the interconnect issues in nanoscaling. | CO1 | 5 |
| (OR) | | | | |
| 4. | a. | Discuss physical and thermal limits of scaling. | CO1 | 5 |
| b. | Differentiate Nanoelectronics and nanotechnology. | CO1 | 5 |
| c. | Comment on resonant tunneling transistors. | CO1 | 10 |
|  |  |  |  |  |
| 5. | a. | Identify the properties of carbon nanotubes with respect to the change in structure. | CO1 | 12 |
| b. | Enlist the application of spinctronic devices in nanoelectronics. | CO3 | 8 |
| (OR) | | | | |
| 6. | a. | Illustrate three modes of vibration of nanotubes. | CO2 | 12 |
| b. | Discuss the applications of nano- optoelectronic devices. | CO2 | 8 |
|  |  |  |  |  |
| 7. | a. | Comment on magnetoresisitve molecules. | CO2 | 10 |
| b. | Synthesis the stress strain relationship of nanotubes. | CO1 | 10 |
| (OR) | | | | |
| 8. | a. | Discuss the various applications of carbon nanotubes in field emission and shielding. | CO2 | 12 |
| b. | Analyze the significance of nanotubes in computers. | CO2 | 8 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Differentiate MEMS and NEMS. | CO3 | 5 |
| b. | Discuss the principle of molecular electronics and molecular transport in structures. | CO3 | 15 |