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



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

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| **Code :** | **17NT2001** | **Duration :** | **3hrs** |
| **Sub. Name :** | **INTRODUCTORY NANOTECHNOLOGY** | **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. | Briefly explain the preparation of graphene oxide using modified Hummers method. | CO2 | 10 |
| b. | Explain the sol gel technique. | CO1 | 10 |
| **(OR)** | | | | |
| 2. | a. | Explain the construction and working of scanning electron  microscope. | CO3 | 10 |
| b. | Give a brief description on different methods of CNT synthesis. | CO3 | 10 |
|  |  |  |  |  |
| 3. | a. | Briefly explain the properties of graphene. | CO2 | 10 |
| b. | What are the medical applications of fullerenes? | CO2 | 10 |
| **(OR)** | | | | |
| 4. | a. | Give a brief description on Atomic force microscopy technique. | CO3 | 10 |
| b. | Explain the sonochemical method for the synthesis of nanomaterials. | CO2 | 10 |
|  |  |  |  |  |
| 5. | a. | What is high energy ball milling method? | CO2 | 10 |
| b. | Differentiate between top down and bottom up approaches in nanotechnology. | CO2 | 10 |
| **(OR)** | | | | |
| 6. | a. | What are the contributions of Feynman and Eric Drexler in the field of nanotechnology? | CO2 | 10 |
| b. | “There is plenty of room at the bottom”. Whose famous statement is this? Justify the statement. | CO3 | 10 |
|  |  |  |  |  |
| 7. | a. | Explain the different types of Carbon NanoTube. | CO3 | 10 |
| b. | Explain in detail the synthesis and purification of fullerene. | CO2 | 10 |
| **(OR)** | | | | |
| 8. | a. | Describe the electronic properties of nanomaterials as a function of size. | CO3 | 10 |
| b. | Mention about the ethical challenges and dangers faced in the field of nanotechnology. | CO3 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Write in detail the history of nanotechnology. | CO2 | 10 |
| b. | Explain few applications of nanotechnology. | CO3 | 10 |