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



**End Semester Examination – Nov/Dec– 2017**

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| **Code :** | **14NT2001** | **Max. Marks :** | **100** |
| **Sub. Name :** | **FUNDAMENTALS OF NANOTECHNOLOGY** | **Duration :** | **3hrs** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. | a. | Explain in detail the various phases involves in development of nanotechnology stated by Dr.MihailRoco. | CO1 | 10 |
| b. | Explain in detail about the various scientist involved in evolution of nanotechnology. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Explain in detail about top-down and bottom-up approach with an example. | CO1 | 15 |
|  | b. | Give five examples were nanotechnology products are used. | CO2 | 5 |
|  |  |  |  |  |
| 3. |  | Write in detail the synthesis of CNT in the following methods.  i. Arc discharge ii. LASER ablation iii. CVD method | CO1 | 20 |
| (OR) | | | | |
| 4. |  | Write in detail, how CNT is used in the following applications  i. Transistor ii. Nanopores iii. H2 Storage iv. Flow sensor v. Nanotube filter | CO1 | 20 |
|  |  |  |  |  |
| 5. | a. | Schematically explain the working principle of SEM. | CO3 | 10 |
|  | b. | Explain in detail about SE and BSE in SEM. | CO3 | 10 |
| (OR) | | | | |
| 6. | a. | Graphically represent various DOS with an example each. | CO1 | 10 |
|  | b. | What are the criteria required for the construction of a clean room. | CO2 | 10 |
|  |  |  |  |  |
| 7. | a. | Write a note on modified Hummer’s method for preparation of Graphene oxide. | CO1 | 10 |
|  | b. | Write in detail about the applications of graphene. | CO1 | 10 |
| (OR) | | | | |
| 8. |  | Discuss the various factors enhanced the role of nanotechnology in the field of medicine. | CO2 | 20 |
|  | **Compulsory:** | |  |
| 9. |  | With a neat diagram explain the working principle of AFM and TEM. | CO3 | 20 |

ALL THE BEST