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



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

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| **Code :** | **16NT3006** | **Duration :** | **3hrs** |
| **Sub. Name :** | **NANO-SAFETY AND ENVIRONMENTAL ISSUES** | **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 the identified overarching categories of research needed to better understand and manage potential risks associated with Nanotechnology. | CO1 | 15 |
| b. | Discuss the challenges in producing and handling engineered nanomaterials. | CO1 | 5 |
| **(OR)** | | | | |
| 2. | a. | Nano-specific risks will depend on individual technologies and how they are implemented. Justify the statement. | CO1 | 15 |
| b. | Prepare a report on the effect of nanoparticles on human health. | CO1 | 5 |
|  |  |  |  |  |
| 3. | a. | Review the systemic translocation of inhaled nanoparticles in humans. | CO1 | 15 |
|  | b. | Write a detailed note on Pulmonary effects of SWCNT. | CO1 | 5 |
| **(OR)** | | | | |
| 4. | a. | Prepare a detailed report on the eco-toxicity of carbon nanotubes and fullerenes. | CO2 | 15 |
| b. | Explain in detail inhalation and deposition of nanoparticles in Humans. | CO2 | 5 |
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| 5. | a. | Discuss in detail the mechanism of clearance of nanoparticles in the human body. | CO2 | 15 |
| b. | Explain in detail the effect of cytotoxicity in metal and metal oxide nanoparticles. | CO2 | 5 |
| **(OR)** | | | | |
| 6. | a. | Describe the different methods to measure the ecotoxicity and explain how it can harm our ecosystem. | CO2 | 15 |
| b. | Discuss the biopersistence of inhaled soild material. | CO2 | 5 |
|  |  |  |  |  |
| 7. | a. | Describe in detail the ecotoxicological approaches in the evaluation of soil quality. | CO3 | 15 |
| b. | Explain the ecotoxicity measurement for polychlorinated biphenyls? | CO3 | 5 |
| **(OR)** | | | | |
| 8. | a. | Describe the measurement of genotoxicity by using AMES test. | CO3 | 15 |
| b. | Discuss the influence of nanotechnology on the environment. | CO3 | 5 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Discuss the FDA regulations and cytotoxicity of nanoparticles. | CO3 | 15 |
| b. | Describe in detail the safety measures to be adopted while working with nanocrystalline materials. | CO3 | 5 |