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

G:\logo and QP Template\logo 3 Feb 2018 final.tif

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Code :** | **16NT3006** | **Duration :** | **3hrs** |
| **Sub. Name :** | **NANO-SAFETY AND ENVIRONMENTAL ISSUES** | **Max. marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Outcome** | **Marks** |
| 1. | a. | Expand FDA and NIOSH. | CO3 | 4 |
| b. | Discuss the pulmonary toxicity of SWCNT and MWCNT. | CO1 | 16 |
|  | (OR) |  |  |
| 2. | a. | Discuss the occupational hazardous of nanotechnology. | CO2 | 10 |
|  | b. | Highlight the mechanism of translocation of nanoparticles in the human body. | CO1 | 10 |
|  |  |  |  |  |
| 3. | a. | Write the mechanism of clearance of nanoparticles in the human body. | CO1 | 10 |
| b. | Highlight the cytotoxicity of metal and metal oxide nanoparticles. | CO1 | 10 |
|  |  | (OR) |  |  |
| 4. | a. | Write briefly on the toxicity of |  |  |
|  | i) Dust nanoparticles. | CO2 | 5 |
|  | ii) Silica nanoparticles. | CO2 | 5 |
|  | iii) TiO2 nanoparticles. | CO2 | 5 |
| b. | Highlight some of the unique properties of nanoparticles. | CO1 | 5 |
|  |  |  |  |  |
| 5. |  | Write short notes on |  |  |
| a. | Military and security misuse using nanoparticles. | CO3 | 7 |
| b. | Apostosis. | CO3 | 6 |
| c. | Ecotoxicity. | CO3 | 7 |
|  |  | (OR) |  |  |
| 6. | a. | Differentiate between biopersistance and Bioaccumulation. | CO2 | 6 |
| b. | Discuss the various applications of nanotechnology in the field of cosmetics, electronics and automobile industry. | CO3 | 14 |
|  |  |  |  |  |
| 7. | a. | Discuss the role of various regulatory bodies across the world to enforce safety measures for nanotechnology. | CO3 | 10 |
| b. | Write briefly on risk assessment and management of nanotechnology. | CO3 | 10 |
|  |  | (OR) |  |  |
| 8. |  | Write briefly on |  |  |
| a. | Nanodivide. | CO3 | 6 |
| b. | Grey-Goo Scenario. | CO3 | 7 |
| c. | Post humanism. | CO3 | 7 |
|  | |  |  |  |
|  | | **Compulsory :** |  |  |
| 9. | a. | Write in detail the effects of nanotechnology on the environment. | CO2 | 10 |
| b. | Discuss the safety measures to be adopted while working with nanosized materials. | CO3 | 10 |