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



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

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| **Code :** | **14NT2016** | **Duration :** | **3hrs** |
| **Sub. Name :** | **NANOMATERIALS FOR HEALTH CARE** | **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. | Explicate biopolymers on human body. | CO1 | 10 |
| b. | Give your comments on Nano World versus Medical Technology. | CO3 | 10 |
| **(OR)** | | | | |
| 2. | a. | Discuss three types of generations of biomaterials. | CO2 | 10 |
| b. | Describe bioceramics and its application. | CO2 | 10 |
|  |  |  |  |  |
| 3. | a. | How aluminium oxide can be prepared? Explain the applications of bio inert ceramics in orthopeadics. | CO2 | 10 |
| b. | Describe the applications of various alloys in Orthopedics surgery. | CO3 | 10 |
| **(OR)** | | | | |
| 4. | a. | Comment on Hydrogels with their properities and uses. | CO1 | 10 |
| b. | How nanobots are going to play vital role in surgical field? Draw a neat diagram of simple nanobot. | CO3 | 10 |
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| 5. |  | Describe and discuss the various types of PaceMaker devices. Mention their designs and theirs function. | CO3 | 20 |
| **(OR)** | | | | |  |  | CO |
| 6. |  | Draw a neat diagram of ring external fixators devices. Explain different pins, clamps, frames and connecting rods in external fixators. | CO2 | 20 |
|  |  |  |  |  |
| 7. |  | Give your observations on anatomy of eye, optical implant materials with neat diagram. | CO1 | 20 |
| **(OR)** | | | | |
| 8. |  | Discuss the arrangement of teeth and bones on human body. Explain its composition and properties with suitable diagrams. | CO2 | 20 |
|  | | **Compulsory**: |  |  |
| 9. |  | Elucidate Polymeric scaffolds, collagen and cellulose with suitable examples. | CO1 | 20 |