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



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

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|  |  |  |  |
| **Code :** | **16NT3008** | **Duration :** | **3hrs** |
| **Sub. Name :** | **MEMS AND NEMS** | **Max. Marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | Evaluate the various CMOS-MEMS micromachining methods with suitable diagrams. | CO2 | 20 |
| **(OR)** | | | | |
| 2. |  | Elaborate the functions of MEMS pressure sensor with neat diagram. | CO3 | 20 |
|  |  |  |  |  |
| 3. |  | Discuss in detail the energy harvesting using MEMS. | CO3 | 20 |
| **(OR)** | | | | |
| 4. | a. | Explain in detail the software tools used for MEMS/NEMS design. | CO2 | 10 |
| b. | Determine the importance of clean room class and its protocols during the MEMS/NEMS fabrication. | CO1 | 10 |
|  |  |  |  |  |
| 5. |  | Estimate the function of liquid crystal polymers (LCP) as non-silicon MEMS technology with suitable diagrams. | CO1 | 20 |
| **(OR)** | | | | |
| 6. |  | Explain the optical switching using MEMS technology with suitable diagrams. | CO3 | 20 |
|  |  |  |  |  |
| 7. |  | Determine the function of printed circuit board as non-silicon MEMS technology | CO2 | 20 |
| **(OR)** | | | | |
| 8. |  | Discuss in detail the MEMS based memory devices with suitable diagrams. | CO3 | 20 |
|  | | **Compulsory**: |  |  |
| 9. |  | Discuss in detail the various fabrication techniques used for the fabrication of MEMS/NEMS. | CO1 | 20 |