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



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

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| **Code :** | **12CH319** | **Duration :** | | **3hrs** | |
| **Sub. Name :** | **MOLECULAR AND MATERIALS SELF ASSEMBLY** | | **Max. Marks :** | | **100** | |

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

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| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | Describe how SAMs are formed with a neat diagram. | CO1 | 20 |
| **(OR)** | | | | |
| 2. | a. | Illustrate the hierarchical self-assembly. | CO1 | 15 |
| b. | Describe any two applications of SAM. | CO1 | 5 |
|  |  |  |  |  |
| 3. |  | Prepare a detailed account on the crystal engineering of oriented zeolite film and zeolite-ordered multi-crystal arrays. | CO1 | 20 |
| **(OR)** | | | | |
| 4. |  | Explain the LbLMEMS and LbLself limiting reactions. | CO1 | 20 |
|  |  |  |  |  |
| 5. |  | Explain the VLS synthesis of nanowires and Nanowire quantum size effects. | CO1 | 20 |
| **(OR)** | | | | |
| 6. | a. | Discuss in detail the “manipulating nanowires”. | CO1 | 15 |
| b. | Enumerate the applications of Self assembling nanorods. | CO1 | 5 |
|  |  |  |  |  |
| 7. |  | Outline the synthesis, properties and application of polymer nanocomposites. | CO1 | 20 |
| **(OR)** | | | | |
| 8. |  | Explain the preparation and properties of water soluble nanoclusters. | CO1 | 20 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Justify the concepts of block copolymer thin films and block copolymer lithography. | CO1 | 15 |
| b. | Summarize Nanostructured ceramics. | CO1 | 5 |