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



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

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| **Code :** | **14BT2053** | **Duration :** | **3hrs** |
| **Sub. Name :** | **INDUSTRIAL EFFLUENT TREATMENT** | **Max. Marks :** | **100** |

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

|  |  |  |  |  |
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| **Q.**  **No.** | **Sub Div.** | **Questions** | **Course Outcome** | **Marks** |
| 1. |  | Write down the physical characteristics of waste water. | CO2 | 20 |
| **(OR)** | | | | |
| 2. |  | Elaborate on heavy metals and add a note on the health hazards of it. | CO2 | 20 |
|  |  |  |  |  |
| 3. |  | Discuss the biological constituents of waste water. | CO1 | 20 |
| **(OR)** | | | | |
| 4. |  | Elaborate on biological waste water treatment. | CO1 | 20 |
|  |  |  |  |  |
| 5. |  | Explain the metallic and non metallic constituents of waste water. | CO1 | 20 |
| **(OR)** | | | | |
| 6. |  | Give an account on sedimentation, flocculation and filtration techniques. | CO2 | 20 |
|  |  |  |  |  |
| 7. |  | Explain chemical coagulation and add a note on types of screens. | CO2 | 20 |
| **(OR)** | | | | |
| 8. |  | Describe the process of phosphorus removal by chemical precipitation. | CO3 | 20 |
|  | | **Compulsory:** |  |  |
| 9. | a. | How industrial waste is treated by activated sludge process?  Justify with suitable diagram. | CO3 | 10 |
| b. | Write brief notes on trickling filters. | CO3 | 10 |