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



**End Semester Examination – Nov/Dec – 2017**

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| **Code :** | **14CE2038** | **Duration :** | **3hrs** |
| **Sub. Name :** | **INDUSTRIAL WASTE TREATMENT AND DISPOSAL** | **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. | Demonstrate the physical, chemical process involved in coagulation and flocculation with the help of the diagram. | CO1 | 10 |
| b. | Elaborate in detail about the steps involved in volume and strength reduction. | CO3 | 10 |
| (OR) | | | | |
| 2. |  | Discuss in detail about the process involved in aerobic and anaerobic decomposition along with their benefits. | CO1 | 20 |
|  |  |  |  |  |
| 3. | a. | Write a note on Bioassays and the role of environmental bioassays? | CO1 | 5 |
|  | b. | Explain by-product recovery in industries with one suitable example. | CO1 | 5 |
|  | c. | Summarize about environmental indicator with the help of any two example. | CO1 | 5 |
|  | d. | Summarize about zero liquid discharge industrial systems. State their importance. | CO1 | 5 |
| (OR) | | | | |
| 4. | a. | Explain briefly about chemical precipitation. | CO2 | 10 |
|  | b. | Name the process that is adopted to treat the brackish water. Write in detail about the process and it applications. | CO2 | 10 |
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| 5. | a. | Illustrate about the steps involved in waste audit along with the case study. | CO3 | 10 |
|  | b. | Mention the types of stabilization pond and explain the same in detail. | CO2 | 10 |
| (OR) | | | | |
| 6. | a. | With the help of flow diagram explain the major manufacturing process involved in paper mill? | CO1 | 10 |
|  | b. | List out the effects of crude pulp and paper mill waste on receiving water bodies? Write a note on treating these wastes. | CO1 | 10 |
|  |  |  |  |  |
| 7. |  | Elaborate the physical, chemical and biological methods adopted for treating the tannery waste. | CO2 | 20 |
| (OR) | | | | |
| 8. |  | Explain the flow diagram for manufacturing and treatment of sugar mill waste with neat sketches. | CO3 | 20 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. |  | Explain in detail about the following units of a steel plant.  i. Coke ovens ii. Rolling mills iii. Oxygen plant iv. Pickling bath | CO1 | 20 |

ALL THE BEST