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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**Supplementary Examination – June – 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. | Name the process that is adopted to treat the brackish water.Write in detail about the process and it applications. | CO2 | 15 |
| b. | Discuss the steps involved in volume and strength reduction. | CO3 | 5 |
| (OR) | | | | |
| 2. | a. | Demonstrate the physical, chemical process involved in coagulation and flocculation with the help of the diagram. | CO1 | 10 |
| b. | Summarize the process that occur in lakes due to increase in nutrients. | CO2 | 10 |
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| 3. | a. | Mention the objectives of equalization. Write in detail about the various processes involved in neutralization. | CO1 | 15 |
|  | b. | Point out the strategies that has to be followed to achieve zero waste management. | CO3 | 5 |
| (OR) | | | | |
| 4. | a. | Illustrate about the steps involved in waste audit along with the case study. | CO3 | 10 |
|  | b. | Explain the changes that occur to the pollutants during chemical oxidation. | CO3 | 10 |
|  |  |  |  |  |
| 5. | a. | What is the major manufacturing process involved in paper mill? | CO1 | 10 |
|  | b. | What are the effects of crude pulp and paper mill waste on receiving water bodies? How are these wastes treated? | CO1 | 10 |
| (OR) | | | | |
| 6. |  | Mention the types of stabilization pond and explain the same in detail. | CO2 | 20 |
|  |  |  |  |  |
| 7. |  | Write the physical, chemical and biological methods adopted for treating the tannery waste. | CO2 | 20 |
| (OR) | | | | |
| 8. | a. | List the various operations followed in diary industry. | CO1 | 4 |
|  | b. | Analyse the effects of diary waste on receiving streams and the treatment conventional methods followed. | CO3 | 16 |
|  | | **Compulsory:** |  |  |
| 9. |  | Draw the flow sheet for treatment of distillery wastes along with the by-product recovery from distillery waste. | CO2 | 20 |

ALL THE BEST