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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

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

**End Semester Examination – Nov/Dec – 2016**

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|  |  | **Semester :** | **V11** |
| **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. | Write a short note on any two types of composting along with their benefits. | CO1 | 10 |
| b. | What was the major component that caused London smog and how is smog formation taking place. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | What are Bioassays and write 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. | Explain about zero liquid discharge industrial systems. State their importance. | CO1 | 5 |
| 3. | a. | Explain briefly the characteristics and the treatment of sugar cane mill effluent with the aid of a flowchart. | CO3 | 10 |
| b. | Explain in brief the effect of diary waste in receiving streams. Also propose a treatment for diary wastewater. | CO3 | 10 |
| (OR) | | | | |
| 4. | a. | Discuss the current treatment technologies for wastewater from paper and pulp industries | CO3 | 10 |
| b. | Discuss broadly on biological treatment of leather tanning industry. | CO3 | 10 |
| 5. | a. | Explain the necessity of equalization and proportioning for industrial waste water. | CO2 | 10 |
| b. | What are the disadvantages of disposal of industrial wastewater into the streams? | CO3 | 10 |
| (OR) | | | | |
| 6. | a. | Briefly explain any one method for removal of suspended impurities from wastewater. | CO2 | 10 |
| b. | Explain the treatment of wastewater from fertilizer industry in detail. | CO2 | 10 |
| 7. | a. | State the merits and demerits of Landfill. Also explain the recovery of methane from the landfill. | CO3 | 10 |
| b. | Discuss in detail about the physical unit processes commonly used in wastewater treatment. | CO1 | 10 |
| (OR) | | | | |
| 8. | a. | Discuss in detail the different methods available for removal of dissolved impurities. | CO2 | 8 |
| b. | Write down the comparison between rapid and slow sand filter. | CO1 | 8 |
| c. | Write any two coagulants that are commonly used in wastewater treatment plant. | CO2 | 2 |
| d. | Name any two chemical unit processes in wastewater treatment plant. | CO1 | 2 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Explain the principle and detailed process of coagulation. List out the different coagulants that are being used in treatment plants. | CO1 | 8 |
| b. | Write a short note on stabilization pond. | CO1 | 4 |
| c. | Discuss how the dissolved heavy metals are removed from the wastewater. | CO2 | 8 |

ALL THE BEST