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 :** | **2016-17 ODD** |
| **Code :** | **14FP3017** | **Duration :** | **3hrs** |
| **Sub. Name :** | **Food Industry Waste Management** | **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. | | Paraphrase the key drivers for waste management in developed countries (examples if any to thrust home your point ) | CO1 | 10 |
| b. | | Paraphrase the key drivers for waste management in under developed countries (examples if any to thrust home your point ) | CO1 | 10 |
| (OR) | | | | | |
| 2. | a. | Paraphrase the Ozone Depleting Substances (Regulation & Control) Rules, 2000 | | CO1 | 10 |
| b. | Summarize the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules of 2008 | | CO1 | 10 |
| 3. | a. | Illustrate the chemical methods of treatment used in waste management. | | CO1 | 10 |
| b. | Paraphrase the mechanisms of bioenergy production from organic waste for the following biofuels. Mention their merits. (include flow charts or any diagrams if mandated)   1. Hydrogen 2. Methane | | CO2 | 5  5 |
| (OR) | | | | | |
| 4. | a. | Illustrate the physical methods of treatment used in waste management. | | CO1 | 10 |
|  | b. | Paraphrase the mechanisms of Ethanol production from organic waste. Mention their merits. (include flow charts or any diagrams if mandated) | | CO2 | 10 |
| 5. | a. | Why is there a need for bioenergy? Write a note on treatment of waste from hostel mess waste. | | CO3 | 10 |
|  | b. | Paraphrase the Water (Prevention and Control of Pollution) Act, 1974. | | CO1 | 10 |
| (OR) | | | | | |
| 6. | a. | Describe the optimization of a dumpsite or landfill operations site? Draw necessary diagrams to illustrate the rationale behind the design | | CO2 | 20 |
| 7. | a. | Illustrate the recycling methodology of the following solid waste and the alarming global data which logically backs the concept of recycling rather than incineration.   1. Paper 2. Glass 3. Plastics | | CO3 | 20 |
| (OR) | | | | | |
| 8. | a. | Define Bioconversion. Demonstrate how dairy waste can be converted into high value products. | | CO3 | 10 |
|  | b. | Illustrate the principles (please use imaginary situations to illustrate) of   1. Polluter Pays 2. Lifting of the cooperate veil | | CO1 | 5  5 |
|  | | **Compulsory:** | |  |  |
| 9. | a. | Illustrate the operations in a waste water treatment plant with neat diagrams and flow chart. | | CO3 | 20 |

ALL THE BEST