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Question Paper Code: 59G55

B.E./B.Tech. DEGREE EXAMINATION, DEC 2021

Interdisciplinary

Civil Engineering

15UGM955 – Waste to Energy Conversion

(Regulation 2015)

(Common to Chemical Engineering)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. Per capita generation of solid waste is..... CO1- R
(a) 100-150 mg/d (b) 200-300 mg/d (c) 500-800 mg/d (d) 1000-1200 mg/d
2. The amount of BMW treated per day in Tamil Nadu through CBMWTF is CO2- R
(a) 15 tonnes (b) 35 tonnes (c) 25 tonnes (d) 30 tonnes
3. Under which rule of Government, guidelines for solid waste management are followed today? CO3- R
(a) Municipal Solid Waste Rules, 2000 (b) Municipal Solid Waste Rules, 2016
(c) Solid Waste Rules, 2000 (d) Solid Waste Rules, 2016
4. Which of the following technologies are used to convert biomass into useful energy forms? CO4- R
(a) Bio-chemical process (b) Galvanization
(c) Doping (d) Photoelectric effect
5. Which one of the following cause harm to human health? CO5- U
(a) Organic farming (b) Using of pesticides
(c) Using solar vehicles (d) Protecting forests

PART – B (5 x 3= 15 Marks)

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| 11. What are the factors affecting the waste generation? | CO1- R |
| 12. Why is it essential to provide lining in landfill? | CO2- U |
| 13. What is renewable energy and list out the different types of renewable energy? | CO3- U |
| 14. What is biochemical conversion? | CO4- R |
| 15. Why is it necessary to carry out environment and health impact studies? | CO5- R |

PART – C (5 x 16= 80Marks)

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| 16. (a) Discuss about the waste management hierarchy with neat sketch. | CO1-U | (16) |
| Or | | |
| (b) It is clear that plastic waste damages our ecosystem, suggest few measures to reduce and reuse plastic wastes. | CO1-U | (16) |
| 17. (a) Elaborate composting process in detail. Also explain aerobic composting | CO2-U | (16) |
| Or | | |
| (b) With a neat sketch explain the components of landfill. Also mention the considerations to be adopted near landfill site. | CO2-U | (16) |
| 18. (a) Brief the renewable and non-renewable energy (details, advantage, disadvantage, application, use)?. | CO3-U | (16) |
| Or | | |
| (b) Discuss about thermo chemical hazardous waste? | CO3-U | (16) |
| 19. (a) Discuss about incineration technologies with the emphasis on air emissions and control techniques. | CO4- U | (16) |
| Or | | |
| (b) What is composting? Explain the working of different types of composting with neat sketches. | CO4- U | (16) |
| 20. (a) How does waste to energy conversion techniques affects environment and health of people. Suggest few measures to overcome this issue. | CO5- U | (16) |
| Or | | |
| (b) Discuss in detail about handling, treatment and disposal of BMW in India. | CO5- U | (16) |