

Dr. Gallapati

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT  
TEST -3 EXAMINATIONS, DEC-2021

B.Tech, VII Semester

COURSE CODE: 19B1WBT731

MAX. MARKS: 35

COURSE NAME: SUSTAINABLE TECHNOLOGIES FOR WASTE MANAGEMENT

COURSE CREDITS: 03

MAX. TIME: 2 Hours

*Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

1. As a specialist in waste management, Invent firm contacted you for making the electricity by MFC technology by utilizing the resources of JUIT. Explain them what variants of MFC technologies possible to establish using the JUIT resources? Explain the different components of MFC along with their role in electricity production? (6 M)
2. If you have an opportunity to prepare a biodiesel from waste oils, explain the utilizing process by mentioning the substrates, catalysts and reaction conditions? Differentiate the usage of homogenous and heterogeneous catalysis in biodiesel technology (6 M)
3. With a neat sketch explain the different steps involved in bioethanol production from lignocellulosic waste by explaining the purpose and process of each step? What are the different technical challenges encountered in each process of bioethanol technology? (6 M)
4. If you got a chance to fulfill the energy problem of India utilizing the different waste streams of the nation, discuss the different technologies you will adopt by utilizing the available waste resources with a neat diagram? (6 M)
5. How the Industrial ecology helps in sustainable waste management by including the benefits to the society? Explain the concept of "Industrial Ecology" by taking an example of "Kalundborg Eco-Industrial Park, Denmark"? (6 M)
6. What is the necessity of "Life-cycle assessment (LCA)"? What are the goals of LCA? Discuss in-detail about the different phases of LCA? (5 M)

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