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**INSTITUTE OF AERONAUTICAL ENGINEERING**

(Autonomous)

Dundigal-500043, Hyderabad

**B.Tech VII SEMESTER END EXAMINATIONS (REGULAR) - FEBRUARY 2022**

Regulation: R18

**ENERGY FROM WASTE****Time: 3 Hours**

(CSE|IT)

**Max Marks: 70**

**Answer FIVE Questions choosing ONE question from each module**  
**(NOTE: Provision is given to answer TWO questions from any ONE module)**

**All Questions Carry Equal Marks****All parts of the question must be answered in one place only****MODULE – I**

1. (a) Discuss global warming and explain the process of recycling municipal solid waste. [7M]  
(b) What are the biological properties of municipal solid waste? Explain the process of waste collection in detail. [7M]
2. (a) Describe various types of biomedical solid waste. Explain the disposal methods of biomedical waste with neat sketch. [7M]  
(b) Write a brief notes of the following:  
i) Reuse of material  
ii) Recovery of energy and material  
iii) Energy generation from waste  
iv) Disposal of industrial waste [7M]

**MODULE – II**

3. (a) Discuss various phases of operation of landfill. Draw the neat sketch of a landfill. [7M]  
(b) List the major disadvantages of open dump landfill. Explain with a neat sketch operation of sanitary land fills. [7M]
4. (a) Discuss the preliminary design of landfills and also explain about the process of controlling leachate? [7M]  
(b) Explain the process of composting and discuss the characteristics of waste in the land fill. [7M]

**MODULE – III**

5. (a) Explain the process of backyard composting. Briefly explain biomass energy conversion overview with block diagram. [7M]  
(b) Explain in detail the anaerobic digestion of sewage with the help of flow chart. [7M]
6. (a) Describe various bio-chemical conversion processes. With the neat sketch explain the treatment of sewage. [7M]  
(b) What is the major difference between low rate and high rate digester? Illustrate standard rate single-stage digester. [7M]

#### MODULE – IV

7. (a) Discuss in detail the process of biogas production in thermo chemical conversion. [7M]  
(b) List out the advantages of briquetting in thermo chemical conversion. [7M].
8. (a) What is bio-mass feedstock? Explain the various thermo-chemical conversion processes. [7M]  
(b) Bring out the variation between producer gas and syngas. Explain with neat sketch different gasifiers used in thermo chemical conversion. [7M]

#### MODULE – V

9. (a) Describe growth of electrical and electronics industry in India and discuss the environmental concerns and health hazards in recycling e-waste. [7M]  
(b) Discuss in detail about regulations by government on e-waste management. [7M]
10. (a) Describe the reason behind global trade in hazardous waste and explain the impact of hazardous e-waste in India. [7M]  
(b) Explain the need for stringent health safeguards. Discuss environmental protection laws of India. [7M]

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