

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)
Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad

M.TECH III SEMESTER REGULAR END EXAMINATIONS, NOVEMBER-2019

Subject: Waste to Energy

Branch/Specialization: Common to **EEE & ME/Electrical Power Systems, Thermal Engineering & Machine Design**

Time: 3 hours

Max. Marks: 70

Answer ALL questions of the following

5x 14 Marks= 70 Marks

1. Define Solid waste management (SWM) and explain it in detail with examples.

OR

2. Define hazardous waste and explain the various sources of hazardous wastes.

3. Choose any different types of pyrolysis process and explain it in detail.

OR

4. List the benefits of waste plastic, tire pyrolysis and the application of pyrolysis oil.

5. Explain with neat sketch the biomass - fired combustion system

OR

6. Explain with sketch diagram of circulating fluid bed gasification.

7. Explain about the Fluidized bed combustor with sketch diagram.

OR

8. a) Explain about gasification process in-detail? [7M]

b) Discuss briefly on environmental benefits of bio-chemical and thermo chemical process [7M]

9. List out the major properties of biodiesel which are used in diesel engine and explain.

OR

10. Choose any one of the second generation oil and explain its transesterification process for producing Biodiesel.

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M.TECH III SEMESTER REGULAR END EXAMINATIONS, NOVEMBER-2019

Subject: Advanced Materials for Thermal Systems

Branch/Specialization: **ME/Thermal Engineering**

Time: 3 hours

Max. Marks: 70

Answer ALL questions of the following

5x 14 Marks= 70 Marks

1. Explain with sketch the weldability of steel and state the parameters that decides the weldability.

(OR)

2. List out the various heat treatment methods and explain how it helps to improve the heat transfer characteristics of metals.

3. Enlist the various components of breeder reactor and explain its working.

(OR)

4. Discuss the Effects on electrical, electronic and magnetic behavior of materials.

5. Briefly discuss about the Conductive membranes for low-temperature fuel cells.

(OR)

6. a) Explain about the various materials used for high temperature fuel cells. [7M]

- b) Explain about the applications of Silicon in thermal systems. [7M]

7. Illustrate the significance of super alloy materials used in thermal power generation and explain in detail

(OR)

8. Enlist the different types of coals used in thermal plants and discuss their physical and chemical properties.

9. Write brief notes on Biological fuel cell technologies

(OR)

10. Discuss about the significance of sustainable energy economy in the world scenario

