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GIET UNIVERSITY, GUNUPUR – 765022

M. Tech (Third Semester – Regular) Examinations, December – 2020

MPEOE 3026 – WASTE TO ENERGY

(Power Electronics)

Time: 2 hrs

Maximum: 50 Marks

The figures in the right hand margin indicate marks.

PART – A

(2 x 10 = 20 Marks)

Q.1. Answer ALL questions

- a. What is the approximate efficiency of fuel wood when used for cooking by conventional methods?
- b. What is the heating value of charcoal?
- c. What are the main advantages of biomass energy?
- d. What is the average efficiency of photosynthetic conversion of solar energy into biomass?
- e. What are the factors affecting the performance of a biogas digester?
- f. Name the various models of biogas plant.
- g. What is meant by wet fermentation and dry fermentation?
- h. Give a list of materials used for biogas generation.
- i. What is meant by energy plantation?
- j. What is the present status of development of biomass energy resources in India?

PART – B (6 x 5 = 30 Marks)

Answer ANY FIVE questions

Marks

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| 2. What is biomass? What are the different resources used to extract biomass energy? | (6) |
| 3. With the help of block diagram, Explain the working of MSW incineration plant. | (6) |
| 4. Compare the relative performances of floating drum and fixed dome type biogas plants. | (6) |
| 5. Discuss the power generation from liquid waste. | (6) |
| 6. Discuss the state-of-art conversion technologies that help to use biomass material efficiently. | (6) |
| 7. What is biodiesel? Discuss the production of biodiesel from Jatropha. | (6) |
| 8. Calculate the volume of a cow-dung based biogas plant required for cooking needs a family of five adults and lighting needs with two 100CP lamps for three hours daily. Also calculate the required number of cows to feed the plant. Assume standard values of data where required. | (6) |
| 9. What are the techniques suggested for maintaining the biogas production? Explain. | (6) |

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