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10ME843

Eighth Semester B.E. Degree Examination, June / July 2014
Biomass Energy Systems

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting atleast TWO questions from each part.

PART – A

- 1 a. What are the process of biomass energy? Explain the process “Photosynthesis” stating all its necessary conditions. (10 Marks)
b. What are the advantages and disadvantages of energy plantation? (10 Marks)
- 2 a. Explain the methods of biomass conversion with the help of flow chart. (10 Marks)
b. Explain the working of a municipal solid waste (MSW) incineration process with a neat sketch. (10 Marks)
- 3 a. Define Briquetting and pelletization. Mention the advantages of pelletization process. (10 Marks)
b. What is biomass stool? Explain the classification and features of biomass stool. (10 Marks)
- 4 a. How producer gas is formed? Explain with neat sketch. (10 Marks)
b. Explain the working of fluidized bed gasifier with neat sketch. Mention its advantages. (10 Marks)

PART – B

- 5 a. What is anaerobic digestion? Explain the various factors influencing the production of biogas. (10 Marks)
b. What are the differences between the biomass and biogas? How are biogas plants classified? Explain briefly. (10 Marks)
- 6 a. Explain the production of ethanol from sugarcane with a neat flow chart. (10 Marks)
b. What are the properties and uses of ethanol? (10 Marks)
- 7 a. What are the characteristics of vegetable oil fuels? Explain. (10 Marks)
b. Define : i) Blending ii) Micro – emulsification iii) Cracking iv) Transesterification and also mention the advantages of biodiesel. (10 Marks)
- 8 a. Mention various basic thermo – dynamic cycles in biopower generation. Explain the working of Brayton cycle with neat sketches. (10 Marks)
b. With a neat T – S and P-V diagram. Explain the working of stirling cycle. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.