Register Number.....

M.E. DEGREE EXAMINATIONS: DECEMBER 2009

First Semester

ENERGY ENGINEERING

EEG504: Bio – Energy Conversion Techniques

Time: Three Hours **Maximum Marks: 100**

Answer ALL the Questions:-

PART A (10 x 2 = 20 Marks)

1. What are the modes of thermal energy storage system?
2. Define microbial system.
3. How fuel cell works?
4. What is complete combustion?
5. Define heat rate in thermal power plant.
6. What are the requisites for good combustion?
7. What is topping cycle in cogeneration plant?
8. Define capacity factor of a power plant.
9. What is a pumped storage system?
10. What is solar constant?

PART B (5 x 16 = 80 Marks)

11. (a) Explain the construction and working of continuous type digester.

(OR)

(b) What are the biomass energy conversion mechanisms and explain any one mechanism.

12. (a) (i) Explain the working principle of updraft gasifier. (8)

(ii) Discus the parameters affecting bio gas production. (8)

(OR)

(b) Explain the power generation methods from bio gas power plant.

13. (a) Explain the feed requirements and preprocessing and also discuss the merits and demerits.

(OR)

(b) (i) Describe the fuel and ash handling method. (8)

(ii) Give the types of briquetting methods and also discus the merits and demerits. (8)

14. (a) (i) Explain the gas cooling methods. (8)

(ii) Explain the duel fuel engines. (8)

(OR)

(b) Describe the engine characteristics on gas mode and also explain the 100% gas used engines.

15. (a) (i) Explain the pyrolysis and carbonization and also give their classification.

(OR)

(b) (i) Describe the thermo gravimetric analysis. (8)

(ii) Explain the differential thermal analysis. (8)

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