Register No: …….

M.E. DEGREE EXAMINATIONS: JUNE 2011

Second Semester

ENERGY ENGINEERING

EEG508: Wind Energy Conversion Systems

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

Answer ALL Questions:-

PART A (10 x 2 = 20 Marks)

1. What is wind? Explain.
2. Define betz's limit
3. Draw the schematic diagram of a micro hybrid power system
4. Write short notes on ducted rotor.
5. Brief any two new technologies for mechanical wind pumps
6. How do you vary the power developed in aero generator?
7. Name the parts in fly ball governor
8. What are the physical restrictions in sizing the wind turbine?
9. What are the factors that accounts in determining the cost of energy?
10. State the two important purposes of using work belt in wind turbines.

PART B (5 x 16 = 80 Marks)

11. a) Explain the types of deformation of wind with neat sketches

(OR)

b) Explain changes in wind speed and power density with height. Also explain the power and swept area calculations in designing the wind turbines.

12. a) Evaluate aerodynamics in wind turbine technology.

(OR)

b) Discuss water pumping using wind turbine in detail.

13. a) Discuss aerodynamic stall, mechanical and aerodynamic brakes in detail.

(OR)

b) Explain physical restrictions in siting wind turbines.

14. a) Write short notes on blades, hubs and transmissions

(OR)

b) Discuss water pumping using wind turbine in detail.

15. a) Describe about fall protection systems and Sit harnesses

(OR)

b) What are the economic factors that affect the wind system? Explain cost of energy.

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