

B.E. / B.Tech. Electrical (Electronics & Power) Engineering (Model Curriculum) Semester-VI
TE201A / WIND1 - Wind and Solar Energy System

P. Pages : 2

Time : Three Hours



GUG/S/25/13870

Max. Marks : 80

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- Notes :
1. All questions carry equal marks.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.
 5. Use of slide rule, Logarithmic tables, Steam tables, Mollier's chart, Drawing instruments, Thermodynamic tables for moist air, Psychrometric charts and Refrigeration charts is permitted.
 6. Use of programmable calculator is prohibited.
 7. Don't use red pen for writing the answer.
 8. Don't write any other comments except answer of questions.

1. a) Calculate the Tip speed Ratio for a wind turbine having the rotor radius 25m. the angular speed recorded is 600rad/sec and the available wind speed is 620m/s **8**

b) Explain the tip speed ratio for the wind turbine. **8**

OR

2. a) Discuss the history of wind power generation and explain its applications in detail. **8**

b) Explain stall control and control pitch control. **8**

3. a) Explain doubly fed induction motor regarding wind turbine. **8**

b) Explain Permanent magnet synchronous Generator. **8**

OR

4. a) Discuss fixed and variable speed wind turbine. **8**

b) Explain the construction of Induction motor. **8**

5. a) Discuss different solar photovoltaic technologies in detail. **8**

b) Explain energy generation through solar energy with its various application. **8**

OR

6. a) Discuss winter solstice and summer solstice in detail. **8**

b) Explain terrestrial and extra terrestrial radiation. **8**

7. a) Write a short note on decentralized power generation. 8
- b) Explain power generation through non-conventional energy source. 8

OR

8. a) Discuss the applications of solar power generation in detail. 8
- b) Explain the working of wind power generation. 8
9. a) What is solar collector. Discuss the types of solar collector. 8
- b) What is solar pond? Explain the main application of solar pond. 8

OR

10. a) Differentiate between conventional and non-conventional energy sources in detail. 8
- b) Discuss the factors should be considered for solar power plant installation in detail. 8
