

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

P. Pages : 2

Time : Three Hours



GUG/W/24/13870

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. Non programmable calculator is permitted.

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

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

OR

2. a) Discuss the tip speed ratio in detail. 8

b) Discuss the classification of energy sources. 8

3. a) Classify the types of generator used in wind turbine mechanism. 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- 8

i) Solar cell

ii) Solar PV module

iii) Solar panel

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) What is voltage sag. Discuss the characteristics of voltage sag. 8
7. a) Write a short note on decentralized power generation. 8
- b) Explain power generation through non-conventional energy sources. 8

OR

8. a) Explain grid code technical requirement 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) Explain aqua ammonia absorption system. 8
- b) Discuss the factors should be considered for solar power plant installation in detail. 8
