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Roll No. | | | | | | | | | | | | **Total No. of Pages : 01**

Total No. of Questions : 08

M.Tech. (Power System) (2018 Batch) (Sem.–1)

WIND AND SOLAR SYSTEMS

Subject Code : MTPS-103D-18

M.Code : 75785

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1.Attempt any FIVE questions out of EIGHT questions.

2.Each question carries TWELVE marks.

1. a) As referred to Indian context, explain the historical development of solar and wind power plants.

   b) Differentiate between solar thermal and solar PV systems. Also mention the advantages and limitations of each type.

2. a) Discuss with block diagram, the various applications of concentrating solar collectors.

   b) What are the various methods of storing solar energy? Explain any one method in detail.

3. Classify different types of solar thermal collectors and show the constructional details of a flat plate collector, what are its main advantages and limitations?

4. What are the various steps involved in the production of solar modules? Why fabrication of solar cells is necessary? Draw the schematic diagram of a solar power tower and explain its working.

5. An aero-generator generates an output of 1200W at wind speed of 5m/s at one atmospheric pressure and a temperature of 20°C. What will be the output, if the same aero-generator is installed on the top of a hill where the temperature is 10°C, pressure is 0.85 atmospheric and wind speed is 6m/s?

6. Explain the principle of operation and differences between an on-shore and off-shore wind power plant. Give advantages and limitations of each.

7. Explain the various reactive power and voltage control requirements of a wind power plant.

8. What are the technical regulations for interconnecting a wind plant with a power system? Also, explain the various power quality standards used for wind turbines.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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