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

Total No. of Questions : 08

M.Tech. (Power System) (Sem.–1)

WIND AND SOLAR SYSTEMS

Subject Code : MTPS-103D-18

M.Code : 75785

Date of Examination : 27-01-2023

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. Explain the principle of solar PV power generation. Describe its main elements. Also, mention its advantages and limitations *w.r.t*. Indian context.

2. Explain the various network integration issues of wind power plants while its interconnection with power system.

3. a) With the help of a schematic diagram, explain the working of a solar thermal water pump.

   b) What features of solar energy makes it attractive for use in irrigation water pump?

4. An aero-generator installed at sea shore generates an output of 1200 W at wind speed of 6 m/s at a temperature of 27°C. What will be the output, if the same aero-generator is installed on the top of a hill where the temperature is 15°C, pressure is 0.85 atmospheric and wind speed is 8 m/s?

5. a) Give a neat diagram of a central tower receiver power plant and explain its operation.

   b) Give the details of an operational plant if such a plant exists anywhere in the world.

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. a) Explain the various power quality standards used for wind turbines.

   b) What are the technical regulations for interconnecting a wind plant with a power system?

8. Describe in brief, the different energy storage methods used in solar power plant.

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.