

Roll No.

Total No. of Pages : 01

Total No. of Questions : 08

Ph.D in Faculty of Engineering (Electrical Engineering)

## RENEWAL ENERGY RESOURCES

M.Code : 77405

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTIONS TO CANDIDATES:

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carry TWENTY marks.

1. a) What is meant by renewable energy sources? Explain. Also write down the various advantages and limitations of renewable energy sources.  
b) Discuss the atmospheric aspects of electric energy generation and impact of renewable energy generation on environment.
2. a) Enumerate the different applications of solar energy. Describe the solar photovoltaic system.  
b) Explain the measurement of solar radiations. Also discuss the different reasons for the variation of solar radiation reaching the earth than that of received at the outside of the atmosphere.
3. Discuss (in detail) different types of wind turbines and wind rotors.
4. a) Define and classify geothermal sources. Also discuss the advantages and disadvantages of geothermal energy forms.  
b) Explain the working of geothermal electric power plant.
5. Write down the advantages and limitations of wave energy conversion. Discuss the wave energy conversion machines in detail.
6. What is a fuel cell? Describe the principle of working, different types and operating characteristics of fuel cells in detail.
7. a) Describe the thermos-chemical method for hydrogen production.  
b) Describe the different methods of hydrogen storage. Also list their advantages.
8. Explain the following :  
a) Hybrid system and its types.  
b) Hydrogen-powered electric vehicles.

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.