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Total No. of Pages : 02

Total No. of Questions : 08

M.Tech. (Electrical Power System) (Sem.-3)**RENEWABLE ENERGY RESOURCES**

Subject Code : EEPS-301E

M.Code : 51073

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) What is meant by renewable energy sources? Explain in brief various renewable energy sources. Also write down the various advantages and limitations of renewable energy sources. 6
- (b) Explain the following : 6
 - i) Energy parameters
 - ii) Energy efficiency and conservation
2. Define solar constant. Explain the different reasons for the variation of solar radiation reaching the earth than that of received at the outside of the atmosphere. Also enumerate the different applications of solar energy. 12
3. Discuss the following:
 - a) Hybrid systems and its types 6
 - b) Hybrid electric vehicles 6
4. A tidal power plant has 50 generators each rated at 30MW. The maximum head is 10 m and minimum head is 1 m. On an average, the energy is generated for 12 hours every day (6 hours for each tidal cycle). The efficiency of generator and turbine are 0.9 each. The length of embankment is 5km. Find (a) quantity of water flowing through each turbine at maximum output (b) surface area of reservoir (c) wash behind the embankment when reservoir is full (d) energy generated in one year. Neglect power output at 1m head. 12





5. What is a fuel cell? Discuss the different types of fuel cells in detail. 12
6. (a) Define and classify geothermal sources. Also discuss the advantages and disadvantages of geothermal energy forms. 6
(b) Explain the working of geothermal electric power plant. 6
7. What are the different methods of hydrogen production? Explain any two of those in detail. 12
8. Explain the following :
 - a) Economics of wind farms 6
 - b) Selection of optimum wind energy generator 6

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.

