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Total No. of Pages : 02

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M.Tech. (EE) (2018 & Onwards EL-I) (Sem.–1)

RENEWABLE ENERGY SYSTEMS

Subject Code : MTEE-103C-18

M.Code : 75219

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. Write a note on the following :

   a) Distributed generation

   b) Decentralized generation

   c) Embedded generation

   d) Internal combustion engine

2. a) What are the different features of DG? Explain the operation of micro-turbine.

   b) Explain the following terms regarding DG :

      a. Peak shaving

      b. Spinning reserve

3. a) Classify wind turbines on the basis of :

      a. Type of axis installation

      b. Operating speed

   b) What is Yaw system? Explain stall control in detail.

4. a) Draw simplified equivalent circuit model for PV cell. Also explain illuminated test and dark test related to PV cell.

   b) Explain different protection concern in integrating fuel cells to the grid.

5. What is the principle of Fuel Cell? What is the difference between solid oxide fuel cell and molten carbonate fuel cell? How fuel cell can be apply as a back up in grid-connected mode when power is not available?

6. a) Explain the economics behind using of energy storage systems with distributed generators.

   b) What are the different challenges associated with growing development of DG resources? Explain in brief.

7. a) Describe in brief the regulatory and compensation schemes for distributed generation.

   b) Calculate expected total monthly output from DG and the expected percentage reduction in the total monthly load due to DGs. The capacity factor of DG 1 and DG 2 are 0.2 and 0.3, respectively.

8. a) What do you mean by reliability of Power Distribution Systems? Compare spot and grid networks with suitable table.

   b) Explain the following in brief :

      a. Monte Carlo simulation tool

      b. Markov model

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.