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Total No. of Pages : 02

Total No. of Questions : 08

M.Tech.(EE) (2013 Batch E-I) (Sem.-2)
RENEWABLE ENERGY RESOURCES
Subject Code : MTEE-204C
M.Code : 71361

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries EQUAL marks.

1. Explain the following :
 - a) Kyoto protocol for environment change
 - b) Dispersed generation
 - c) Cogeneration
 - d) Energy audit and conservation
2.
 - a) Draw and explain VI characteristics of solar cell. Derive an expression for solar cell efficiency. Explain the term fill factor and its importance as a performance parameter for a solar cell.
 - b) Find the angle subtended by the beam radiations with the normal to flat plate collector at 9.00 AM for the day on 30th September 2016. The collector is placed at Chandigarh (location is 19° 07' N, 72° 51' E) inclined at an angle of 36° and is facing south.
3.
 - a) Explain the various sub-systems of a horizontal axis wind turbine.
 - b) Wind at one standard atmospheric pressure and 150c has a speed of 10m/s. A 10m diameter wind turbine is operating at 5 rpm with maximum efficiency of 40%. Calculate :
 - i) total power density in wind stream
 - ii) the maximum power density



- iii) the actual power density
 - iv) the power output of the turbine
 - v) the axial thrust on the turbine structure.
4. a) How is geo thermal power generation extracted from liquid dominated flashed steam and vapour dominated steam input?
- b) Discuss the control schemes for wind farm.
5. Discuss the principle and operation of fuel cell. Derive an expression for emf and efficiency of fuel cell. Discuss the operating characteristics of the same.
6. Explain different types of electric vehicles. Briefly explain Vehicle to grid and grid to vehicle operation.
7. Explain the different line collectors. Discuss merits and demerits of concentrating collectors over line collectors.
8. Discuss the following :
- a) Double basin arrangement in tidal power generation
 - b) Renewable energy scenario in India

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.