

15301

Roll No. _____

Total No of Pages: **2**

15301

M. Tech. I - Sem. (Main) Exam., Dec. - 2018

Renewable Energy Techniques

1MERET1 Renewable Energy Source

Time: 3 Hours

Maximum Marks: 100

Min. Passing Marks: 33

Instructions to Candidates:

*Attempt any **five** questions, Marks of questions are indicated against each question. Draw neat and comprehensive sketches wherever necessary to clearly illustrate your answer. Assume missing data suitable if any and specify the same. Use of following supporting material is permitted during examination. (Mentioned in form No. 205)*

1. NIL 2. NIL

Q.1 Discuss different renewable energy sources with special reference to Indian context.

Also discuss main features of renewable energy sources. [20]

Q.2 Discuss the following non-conventional energy sources: [20]

(i) Magneto Hydro Dynamic (MHD)

(ii) Ocean Thermal Energy System (OTEC)

(iii) Hydrogen Energy

(iv) Biomass

Q.3 (a) How is the performance of concentrating collector evaluated? [10]

(b) Discuss the following sun earth angles: [10]

- (i) Declination angle,
- (ii) Zenith angle,
- (iii) Angle of Incidence,
- (iv) Solar Azimuth angle

Q.4 (a) What is the process of production of biogas from biomass? What are the main advantages of anaerobic digestion of biomass? [10]

(b) What are different types of gasifiers? Explain up draft gasifier with neat sketch. [10]

Q.5 (a) Explain the working of horizontal axis two blade wind mill with suitable diagram. [10]

(b) What factors are taken into consideration in site selection of a wind power plant? [10]

Q.6 (a) Explain the working principle of geothermal energy system. [10]

(b) What is a fuel cell? Describe the working principle of H_2-O_2 cell. Give its limitations.

Q.7 Write short notes on:

(a) Open and closed MHD system. [10]

(b) Ocean thermal energy and availability. [10]

Q.8 (a) How can power be generated in single basin tidal system? [10]

(b) Explain photovoltaic cell with diagram. [10]
