Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

AU/ME-702(A) (GS)

B.E. VII Semester

Examination, December 2017

Grading System (GS)

Renewable Energy System

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.
iii) Assume suitable data or dimensions, if necessary, clearly mentioned it.

1. a) Explain with neat sketch the working of solar water heater. How much maximum water temperature can be achieved by solar water heater and after that what happened?
   b) Explain with neat sketch the working principle of photovoltaic conversion of solar energy.

2. a) Explain the various forces that act on a wind blade profile, when subjected to external wind conditions. What is the contribution of drag coefficient to power delivered by the wind turbine?
   b) What is the wind power converter? Give the classification of wind power converter, also describe various components of wind generator.

3. a) Explain various steps in the formation of biogas through anaerobic digestion. How will the reactor size change with decreasing digestion period?
   b) What do you mean by biomass gasification, discuss different techniques of biomass conversions?

4. a) Discuss the site selection criterion for micro, mini and small hydro power plants and explain its working principle.
   b) Explain with neat sketch the working principle of Tidal energy conversion system.

5. a) What do you mean by Hydrogen energy? Write the merits and demerits of hydrogen energy.
   b) Discuss the site selection criterion for geothermal power plants and explain its working principle.

6. a) Discuss the principle and equipment's employed to measure wind speeds.
   b) Describe various instruments for measuring solar radiations. What is the working principle of pyrometer and how are these classified?

7. a) Explain briefly the power of photosynthesis which is responsible for the production of biomass.
   b) Explain with neat sketch the working principal of solar cooling and refrigeration systems.

8. Write short notes on followings. (any four)
   a) Capacity factor
   b) Organic PV cells
   c) CO_2 Fixation
   d) Ocean wave energy
   e) Fuel cell
   f) Solar dryers

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