AU/ME - 702 (A)
B.E. VII Semester Examination. December 2014
Renewable Energy System
Time : Three Hours
Maximum Marks : 70
http://www.rgpvonline.com

Note: i) Attempt any five questions as per choice given.
ii ) Draw neat diagrams in support of your answer.
iii ) Assume suitable data if any.

1. a) Discuss about beam and diffuse radiation. Discuss about solar constant.
b) Determine the local solar time and declination at a location Latitude 23 degree and 15 minutes North, Longitude 77 degree 30 minute East at 13.30 1ST on June 19. Equation of time correction is given from standard table = -(1' 01").

OR

2. a) What is the use a Pyrheliometer and a Pyranometer'? Describe the principle of Pyrheliometer.
b) Draw a neat diagram showing all components of a flat-plate solar collector. explain the function of each.

3. a) Discuss the Weibull. Rayleigh and normal distribution of Wind.
b) Describe working of a Wind Energy Conversion System (WECS) with components.

OR

4. a) Derive the expression for maximum power development due to wind.
b) Discuss various characteristics of wind. How they can he measured'?

5 a) Discuss in detail, operation and maintenance of biogas plants.
b) Compare biomass gasification and biogas generation? Draw any one type of biogas digester.

OR

6. a) Compare various biomass conversion routes in brief.
b) State various types of biogas gasifier. Sketch and discuss any one type.

7. a) Discuss types of hydro power plants.
b)Discuss principle of tidal energy conversion with neat sketch.

OR

8 a) Briefly compare types of hydro turbines.
b) Draw a component layout of a hydro power plant. Discuss in brief.

9. a) Classify geothermal sources. State its applications.
b) Define fuel cell. State its types. Discuss basic thermodynamics of fuel cell.

OR

10. a) Write a short note on hydrogen production and storage.
b) Give a brief note on prospects of geothermal energy in context to India.