

GUJARAT TECHNOLOGICAL UNIVERSITY**ME - SEMESTER-IV • EXAMINATION – SUMMER • 2014****Subject Code: 742101****Date: 04-06-2014****Subject Name: Non-Conventional Energy Conversion Systems****Time: 02:30 pm - 05:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q1 A] Discuss present scope of Non-Conventional Energy systems in Gujarat. [7]
B] Describe with the neat sketch the working of wind energy conversion system (WECS) with main components. [7]
- Q2 A] Define (with figure): 1) Beam Radiation 2) Diffuse radiation 3) Hour angle 4) Declination angle 5) Solar Altitude angle 6) Solar azimuth angle 7) Surface azimuth angle [7]
B] Explain the energy conversion from biomass. [7]
- OR**
- B] Explain working of liquid type flat plate collector with neat sketch. [7]
- Q3 A] Write Advantages and disadvantages of wind energy. [7]
B] With the help of a diagram a) discuss the power versus wind speed characteristic of a wind turbine b) discuss C_p versus tip speed ratio diagram. [7]
- OR**
- Q3 A] How can geothermal energy be utilized for electricity generation? [7]
B] Explain the double basin tidal power plant. [7]
- Q4 A] Explain working of PhotoVoltaic cell. [7]
B] Explain Different energy from ocean. [7]
- OR**
- Q4 A] Discuss the principle of magneto hydro dynamic (MHD) power generation. [7]
B] What are the problems associated in use of H_2 as energy source? [7]
- Q5 A] Explain the closed type of MHD power plant with neat sketch. [7]
B] Explain the single basin and double basin tidal power plant. [7]
- OR**
- Q5 A] Explain the solar still. [7]
B] Draw labeled sketch of a) Pyranometer b) Pyhiliometer c) Sunshine Recorder [7]
