Roll No. _____ [Total No. of Pages : 2]

7E7044

7E7044

B.Tech. VII- Semester (Main/Back) Examination, Nov. - 2019
Electrical Engg.
7EE4A Non Conventional Energy Sources
(Common for EE,EX)

Time : 3 Hours **Maximum Marks : 80**

Min. Passing Marks : 26

Instructions to Candidates:

Attempt any five questions, selecting one question from each unit. All Questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly). Units of quantities used/calculated must be stated clearly.

UNIT - I

1. a) What are the reasons of tide and how it can be used for power production? Draw the layout of a tidal power plant and name its various components. **(12)**

   b) Explain the environmental impact of tidal power plant. **(4)**

(OR)

1. Differentiate conventional and non - conventional energy sources. **(16)**

UNIT - II

2. a) How solar radiation on titled surface can be calculated? Discuss mathematical used for the same. **(8)**

   b) What are the solar energy collectors and how do they function? Explain the different types of flat and concentrating collectors. **(8)**

(OR)

2. a) Describe with the neat sketch the working of solar water heating system with back up support used in a hostel. **(8)**

   b) Explain the following terms related to solar radiation geometry. Declination, hour angle, inclination angle, zenith angle, latitude angle, solar azimuth angle, surface azimuth angle and angle of incidence. **(8)**

UNIT - III

3. a) What are the conditions and criterian for selection of site for wind farm and the type of wind machine. (8)

   b) Explain geothermal energy and geothermal preheat hybrid power plant. (8)

(OR)

3. Differentiate horizontal axis and vertical axis wind turbine with neat and clear diagram. (16)

UNIT - IV

4. a) Describe with neat sketch the working of laser fusion reactor. (8)

   b) Briefly explain the different methods of plasma confinement. (8)

(OR)

4. a) What are the requirements of nuclear fission and fusion. (8)

   b) Explain the following terms in detail magnetic heating pellet fusion reactor, plasma heating fusion reactor, hybrid and beam fusion reactor. (8)

UNIT - V

5. a) Explain the process of ethanol production from cassava. What are the uses of ethanol in power sector? (8)

   b) How biogas can be produced. Discuss its application and mechanism involved for generation. (8)

(OR)

5. a) What are the different factors considered for selection of biogas plant site. (8)

   b) What do you mean by pyrolysis? Discuss working of one of the most efficient pyrolysis unit. (8)