Total No. of Questions : 12] **SEAT No. :**

P1382 **[Total No. of Pages : 2**

[4759]-83

B.E. (Electrical Engineering)

RENEWABLE ENERGY SYSTEM

(2008 Course) (Semester - II) (Elective -IV) (403150)

Time : 3 Hours] ***[Max. Marks :100***

Instructions to the candidates:

1) ***Answers to the two sections should be written in separate answer books.***
2) ***Solve Q 1 or Q 2, Q 3 or Q 4, Q5 or Q 6 from Section -I, and Q7 or Q 8, Q 9 or Q 10, Q 11 or Q 12 from Section - II .***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***
5) ***Assume suitable additional data if necessary.***

SECTION - I

Q1) a) Describe concentrating solar power Technologies. **[8]**

b) List various types of fuel cells and explain any one. **[8]**

OR

Q2) a) Explain with neat sketch Biomass for electricity generation. **[8]**

b) Explain combined heat and power technology. **[8]**

Q3) a) Draw and explain wind farm layout showing the dimensions. **[8]**

b) Give simple estimates of wind turbines energy. **[10]**

OR

Q4) a) Write a note on environmental impacts of wind turbines. **[8]**

b) Explain change in wind pattern and forecasting the power generation based on the wind pattern. **[10]**

P.T.O.

Q5) a) Explain the solar spectrum. **[8]**

b) Explain direct and diffused radiation and effect on power generation. **[8]**

OR

Q6) a) Write a note on "Altitude angle of the sun at solar noon". **[8]**

b) Explain with neat diagram "The Earth's orbit and also clearly explain the important dates". **[8]**

SECTION - II

Q7) a) Explain the generic photovoltaic cell and the simplest equivalent circuit for a photovoltaic cell. **[8]**

b) Write a note on Ribbon silicon technologies. **[8]**

OR

Q8) a) How shading impacts on I-V curves. **[8]**

b) Write a note on cast multicrystalline silicon. **[8]**

Q9) a) Explain the grid-connected PV systems and its interfacing with the utility. **[10]**

b) Write a note on, PV powered water pumping system. **[8]**

OR

Q10)a) Explain the capacity factor for PV grid-connected systems and grid-connected system sizing. **[10]**

b) Explain, the Bi-directional metering and list its advantages. **[8]**

Q11)a) Explain Nuclear energy power plant. **[8]**

b) Explain, Impact of renewable energy sources. **[8]**

OR

Q12)a) Write a note on clean coal power plant. **[8]**

b) Explain Biomechanical energy harvesting. **[8]**

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