

Total No. of Questions : 12]

SEAT No. :

**P826**

[Total No. of Pages :2

[4659] - 83

**B.E. (Electrical Engineering)**

**b - RENEWABLE ENERGY SYSTEM**

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

*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, Q.5 or Q.6, from section - I, and Solve Q.7 or Q.8, Q.9 or Q.10, Q.11 or Q.12, from section - II.*
- 3) *Figures to the right indicate full marks.*
- 4) *Neat diagrams must be drawn wherever necessary.*
- 5) *Assume suitable additional data, if necessary.*

**SECTION - I**

- Q1)** a) Explain with neat diagram Micro combustion Turbines Gas Turbine for fossil fuel. [8]
- b) Write a note on "Economics of Distributed Resources". [8]

OR

- Q2)** a) List different types of fuel cells and explain any one. [8]
- b) Explain with neat diagram stirling Engine used for solar technology.[8]

- Q3)** a) Write a note on Historical Development of wind power. [8]
- b) Explain maximum rotor efficiency with the help of sketch and derivation.[10]

OR

- Q4)** a) What are different types of wind turbine electrical generators. Explain in detail. [10]
- b) Explain the specific wind turbine performance calculations. [8]

***P.T.O.***

- Q5)** a) Explain, Total clear sky Insolation on a collecting surface with different types of Radiations. [8]  
b) Write a short note on solar position at any time of day. [8]

OR

- Q6)** a) How the sun path diagrams can be used for shading analysis. [8]  
b) Write a note on monthly clear sky insolation. [8]

### **SECTION - II**

- Q7)** a) Explain from cells to a module and from module to arrays. [8]  
b) Explain the impacts of Temperature and Isolation on I-V curves. [8]

OR

- Q8)** a) Explain the PV I-V curve under standard test conditions. [8]  
b) Write a note on Thin-Film photovoltaic. [8]

- Q9)** a) Write a note on Major photovoltaic system types. [10]  
b) Write a note on Grid-connected PV system Economics. [8]

OR

- Q10)** a) Explain the Maximum Power Point trackers and hourly I-V curves. [10]  
b) Explain the stand alone PV systems with example. [8]

- Q11)** a) Write a note on clean coal power plants. [8]  
b) Write a note on carbon trading and concept of carbon credits. [8]

OR

- Q12)** a) Write a note on Wave Energy Conversion Systems. [8]  
b) Write a note on Kyoto Protocol. [8]

