

Code: 9A02706

B.Tech IV Year I Semester (R09) Supplementary Examinations June 2017

**RENEWABLE ENERGY SOURCES**

(Electrical &amp; Electronics Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Define the following terms with respect to solar radiation:  
(i) Latitude angle (ii) Altitude angle (iii) Hour angle (iv) Zenith angle.  
(b) What are the two types of instruments employed for the measurement of solar radiation? Describe them with neat diagrams.
- 2 (a) What are the main components of flat plate solar collector? With a neat sketch, explain the function of each component.  
(b) Explain in detail the advantages and disadvantages of concentrating collectors over flat plate collectors.
- 3 (a) With a neat sketch, explain the working of solar pond.  
(b) Explain in detail the solar energy storage methods.
- 4 (a) Explain the components of a wind energy conversion system with a neat block diagram.  
(b) List out the differences between horizontal and vertical axis windmills.
- 5 (a) Explain briefly how the biogas plants are classified.  
(b) List out the factors affecting the biogas generation.
- 6 (a) Explain the advantages and disadvantages of geothermal energy over the other forms of energy.  
(b) Write short notes on prospects of geothermal energy in context of India.
- 7 (a) With a neat sketch, explain the working of open cycle OTEC system.  
(b) List the advantages and limitations of OTEC plants.
- 8 (a) Write short notes on direct energy conversion.  
(b) Explain the principle of working of thermo-electric generator.

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