

Renewable Energy Sources-19EE6IERES(*An Institutional Level Elective for VI Semester*)



DAYANANDA SAGAR COLLEGE OF ENGINEERING

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(An Autonomous Institute affiliated to VTU, Approved by AICTE & ISO 9001: 2008 Certified)
(Accredited by NBA and NAAC with 'A' Grade)

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

RENEWABLE ENERGY SOURCES-18EE6IERES

(Institutional Level Elective)

Question Bank

Module-1-Introduction to Renewable Energy Sources.

- 1) List out and describe the different types of energy sources available in nature.
- 2) Elaborate importance and need of alternative energy sources.
- 3) List out and describe the different types of Non-conventional energy sources.
- 4) Briefly describe the Fuel quality aspects related to emissions.
- 5) Elaborate the Technological up-gradation required for alternative fuels.
- 6) Briefly describe the Implementation barriers for using alternative fuels.
- 7) Briefly describe the Roadmap for the usage of alternative fuels in future.
- 8) Differentiate between Renewable and Non-Renewable energy sources.
- 9) Describe the energy consumption as a measure of prosperity.
- 10) Describe the Advantages and Applications of solar energy.
- 11) Briefly explain the importance of solar energy in present-days.
- 12) Briefly discuss about the available Renewable energy sources in India.
- 13) Elaborate the Renewable and Non-Renewable energy sources in terms of availability and importance.
- 14) Describe the limitations of Renewable energy sources in terms of availability and usage.
- 15) Briefly discuss about the Coal, Gas and Wood as commercial Energy sources.

Module-2-Solar Energy Basics and Wind Energy.

- 1) With a neat sketch describe the basic working principle of Solar Cell or Photovoltaic Cell.
- 2) With a neat diagram describe the Principle of Conversion of Solar Radiation into Heat.
- 3) Describe the different types of Solar Water Heaters with their advantages and disadvantages.
- 4) Explain the flat plate collectors and describe the basic components of it.
- 5) Describe solar cookers and with the help of neat sketch explain the different types of solar cookers.
- 6) With a neat diagram explain the Box type and concentrating dish type of solar cookers.
- 7) Briefly discuss about the advantages and disadvantages of Box type and concentrating dish type of solar cookers.
- 8) Briefly discuss about the Advantages, Disadvantages and limitations of solar cookers.
- 9) With help of a neat sketch describe the solar dryer and list out the advantages.
- 10) With a block diagram briefly explain the "Solar Green House".
- 11) Briefly explain the Principle of wind energy conversion system.
- 12) With the help of a neat diagram explain the Types of wind energy conversion machines.
- 13) List out the Advantages and Disadvantages of Vertical axis and Horizontal axis wind energy conversion machines.
- 14) Classify the different types of wind energy conversion machines and list out the application of Wind Energy.
- 15) List out the Advantages and Disadvantages of Wind Energy.
- 16) Briefly discuss about the consideration factors for the site selection of Wind Energy power plant.
- 17) Discriminate between the Solar and Wind power generating systems.

Module-3-Biomass Energy.

- 1) Briefly explain about Bio-Gas and its history of evolution.
- 2) Elaborate the process of Bio-Gas production.
- 3) Classify the Bio-Gas plants and explain any two types.
- 4) Briefly explain the Balloon type and Fixed-dome type of Bio-Gas plants.
- 5) Briefly discuss about the Advantages and Disadvantages of Bio-Gas power plant.
- 6) With a neat sketch elaborate the Floating drum type of Bio-Gas Plant also list out its advantages.
- 7) With a neat sketch elaborate the Fixed-dome type of Bio-Gas Plant also list out its advantages.
- 8) With a neat sketch elaborate the Balloon type of Bio-Gas Plant also list out its advantages.
- 9) Briefly discuss about the Biogas storage and dispensing system and list out the applications of Bio-Gas Plant.
- 10) Briefly explain about the Hazards and emissions of biogas.
- 11) Explain about Straight vegetable oil along with its application and usability.
- 12) Briefly discuss about Benefits and Factors affecting the Bio-Gas production.
- 13) Briefly explain about the Bio-diesel and its applications.
- 14) Briefly discuss about the Advantages and Limitations of Bio-Gas power plant.

Module-4- Energy from Ocean.

- 1) Briefly discuss about the main components of Tidal power plant.
- 2) Elaborate the Single and Double basin type of Tidal power plants.
- 3) Briefly discuss about the Advantages and Disadvantages of Tidal power plant.
- 4) With the help of a block diagram explain the principle of Ocean Thermal Energy Conversion system (OTEC).
- 5) Elaborate any two Methods of Ocean Thermal Energy power generation.
- 6) With the help of a block diagram explain the Hybrid type of Ocean Thermal Energy power generation.

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- 7) Briefly discuss about the Site-selection criteria for OTEC system.
- 8) Briefly discuss about the Bio-fouling and corrosion in OTEC system and explain the Preventive Measures.
- 9) Briefly discuss about the Advantages and Disadvantages of OTEC system.
- 10) Briefly discuss about the Applications and Limitations of OTEC system.
- 11) Describe the comparison between Tidal power plant and OTEC system in the view of energy conversion.

Module-5- Emerging Technologies & Energy Storage

- 1) Briefly discuss about the construction and working of Fuel Cell.
- 2) Write a short note on Conversion of Hydrogen into Electricity and its applications.
- 3) With block diagram explain the concept of wave energy.
- 4) Briefly discuss about the Advantages and Disadvantages of wave energy.
- 5) Briefly discuss about the importance and need of Energy storage system.
- 6) Elaborate the any two methods of Energy storage systems.
- 7) Briefly explain the Battery storage system and its applications.
- 8) Briefly discuss about the Advantages and Limitations of Energy storage systems.
- 9) List out the Benefits of Battery Energy Storage Systems.
- 10) List out the comparisons between Battery and Super-capacitor energy storage systems.