

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 2950

Roll No.

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B.Tech.

**(SEM. VIII)-EVEN THEORY EXAMINATION 2012-13
NON CONVENTIONAL ENERGY RESOURCES**

Time : 3 Hours

Total Marks : 100

Note :- (1) Answer all questions.

(2) All questions carry equal marks.

1. Attempt any two out of the following : (10×2=20)
 - (a) Discuss renewable forms of energy. Highlight their merits and demerits.
 - (b) With the aid of block diagrams explain (i) Autonomous solar power plant and (ii) Combined solar power plant.
 - (c) Describe principle of solar photovoltaic conversion. Discuss the limitations of solar photovoltaic energy conversion.

2. Attempt any two out of the following : (10×2=20)
 - (a) Describe the construction of solar flat plate collector. How is its performance evaluated ?
 - (b) Classify various energy storage systems. Describe steam storage system for solar thermal energy.
 - (c) Describe solar absorption refrigeration system for space cooling.

3. Attempt any two out of the following : (10×2=20)

- (a) Explain a vapour dominated geothermal power plant. What are the environmental constraints in design of geothermal power plants.
- (b) How are magnetohydrodynamic systems classified ? Describe them in brief.
- (c) Describe the principle of working of a full cell with reference to Hydrogen Oxygen Cell. Discuss advantages and limitations of fuel cells.

4. Attempt any two out of the following : (10×2=20)

- (a) Explain principles of power generation in windmills. Derive an expression for maximum efficiency.
- (b) Describe main considerations in selecting a site for wind farm. Discuss merits and demerits of wind energy.
- (c) Describe the principle of operation and constructional details of a basic thermionic generator.

5. Attempt any two out of the following : (10×2=20)

- (a) Classify biomass conversion technologies. Explain anaerobic digestion process for production of methane.
- (b) Discuss the technology of Ocean Thermal Energy Conversion (OTEC). What are the environmental effects of OTEC.
- (c) What are tidal waves ? How can power be produced in single pool tidal system.