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

PAPER ID : 2950 Roll No. | | | | | | | | | | |

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) Discus 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.