

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) THEORY EXAMINATION 2011-12

### NON CONVENTIONAL ENERGY RESOURCES

Time : 3 Hours

Total Marks : 100

Note :— (1) Answer all questions.

(2) All questions carry equal marks.

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

- What do you mean by non-conventional energy resources? Discuss briefly.
- What is meant by dry stream, wet stream and hot water geothermal system?
- Discuss the difference between a geothermal power plant and thermal power plant. Categorise resources of geothermal energy.

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

- Classify solar cells. Derive an expression for maximum power output and efficiency of a solar cell.
- Distinguish between global radiation and diffuse radiation. Describe the procedure for evaluating the performance of a solar collector.

- Describe the features and main applications of solar photovoltaic systems.

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

- Draw schematic diagram of a MHD power generating system with a heat recovery system. Explain the working of the system.
- Explain the difference between a fuel cell and battery. What are the uses and advantages of fuel cells?
- Sketch and explain the functioning of solid oxide fuel cells.

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

- Explain the working of the moelctric generator. Differentiate between thermoelectric and thermionic conversion system.
- Describe the basic principle of wind energy conversion and derive the expression for power developed due to wind.
- Classify rotors employed for wind generation. Prove that for a propeller type, horizontal axis wind turbine.

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

- Describe the bioconversion process for obtaining biofuels.
- Draw the schematic diagram of open cycle OTEC system. Also draw the temperature-entropy diagram for it and explain the principle of operation.
- State the present status of tidal power plants in India. Why is the tidal energy not being utilized?