

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

Paper ID : 199851

Roll No.

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B.TECH.

Theory Examination (Semester-VIII) 2015-16

NON CONVENTIONAL ENERGY RESOURCES

Time : 3 Hours

Max. Marks : 100

Section-A

1. **Attempt all sections. All sections carries equal marks. Write answer of each section in short. (10×2=20)**
- (a) Why is geothermal considered a renewable energy resource?
 - (b) How can renewable energy technologies be compared?
 - (c) How tides are generated?
 - (d) What are the sources of heat for hot springs?
 - (e) How durable are solar panels?

- (f) How can you conserve energy and lower your utility bills?
- (g) How much of our daily CO₂ emissions can wind avoid?
- (h) Are fossil fuels renewable?
- (i) How many types of renewable energy are there normally said to be?
- (j) How does geothermal heat get up to the earth's surface?

Section-B

2. Attempt any five questions from this section. (5x10=50)

- (a) What are the conventional and non-conventional energy sources? Write short notes on classification of energy resources.
- (b) What is meant by dry steam, wet steam and hot water geothermal system?
- (c) Explain with sketches the various methods of tidal power generation. Write the Advantages and limitations of tidal power.

(2)

- (d) Write the difference between a geothermal power plant and thermal power plant.
- (e) Describe the principle of working of a fuel cell with reference to Hydrogen Oxygen cell. Also discuss advantages and limitations of fuel cells.
- (f) Write short notes on-
 - (i) MHD
 - (ii) Local apparent time (LAT)
 - (iii) MNRE
- (h) What is the basic principle of wind energy conversion? What methods are used to overcome the fluctuating power generation of a windmill?

Section-C

Attempt any two questions from this section. (2x15=30)

- 3. (a) Write about the solar cells, its material and applications.
- (b) Describe the basic principle of ocean thermal energy conversion (OTEC). What are the main types of OTEC power plants? Describe their working in brief.

(3)

4. (a) Describe the various operational and environmental problems encountered in obtaining the geothermal energy.
 - (b) Describe the working of a Thermo-electric generator. Derive an expression for its power output.
5. What is Biomass? How does biomass conversion take place? Describe the materials used for biogas generation and factors that affect the size of a biogas plant.