

**B.Tech. – VIEP – MECHANICAL ENGINEERING
(BTMEVI)**

00926

Term-End Examination

June, 2016

**BIMEE-003 : NON-CONVENTIONAL ENERGY
RESOURCES**

Time : 3 hours

Maximum Marks : 70

Note : Answer any five questions. All questions carry equal marks.

1. (a) List various non-conventional energy resources. Give their availability, relative merits and demerits. 7
- (b) Differentiate between beam radiation and diffuse radiation. Describe a type of instrument to measure beam radiation with a neat sketch. 7
2. (a) Explain the concentrating type collector system with the help of a neat diagram. Discuss their advantages and disadvantages. 7
- (b) What are solar thermal power plants ? Which are the commonly used power plant cycles ? Discuss their limitations. 7

3. (a) Explain p-type and n-type semiconductors with simple sketches. How are p-n junctions formed? What is their utility? 7
- (b) What are solar greenhouses? Differentiate between the active and passive greenhouses. 7
4. (a) Define biomass and biomass energy. Discuss various biomass resources with examples. 7
- (b) Explain the 'photosynthesis' process. What are the conditions which are necessary for it? 7
5. (a) Describe a vertical axis wind turbine with a suitable example. What are their advantages over horizontal axis turbines? 7
- (b) Describe hydrogen-oxygen fuel cell and the reaction taking place at the anode, cathode and voltage generated. 7
6. (a) Explain the method of H_2 production by electrolysis with the help of a neat sketch. 7
- (b) Describe various methods of tidal power generation. What are the limitations of each method? 7

7. (a) Analyse the working of thermoelectric generator. What is the basic difference between thermoelectric and thermionic conversion systems? 7
- (b) What do you mean by dry, wet and hot water geothermal system? Discuss the field of applications of these systems. 7
8. Write short notes on any *two* of the following: $2 \times 7 = 14$
- (a) Applications of Solar Energy
- (b) Origin and types of Geothermal Energy
- (c) Ocean Thermal Energy
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