BIMEE-003

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

Term-End Examination

00292

December, 2017

BIMEE-003 : NON-CONVENTIONAL ENERGY RESOURCES

Time : 3 hours   *Maximum Marks : 70*

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

1. (a) Discuss the importance of non-conventional energy resources. Also state their limitations.   7

    (b) Explain the geometry of solar radiation and various angles used for its measurement.   7

2. (a) Describe the Tidal and Wave energy process and also state its advantages and disadvantages.   7

    (b) Briefly describe solar radiation with the help of suitable sketches.   7

3. (a) Explain the application of a flat-plate collector in space heating. 7

(b) State photovoltaic effect and discuss the application of PV system. 7

4. (a) Enlist the different factors which affect the generation of biogas. 7

(b) Explain the working of a fixed dome type biogas plant. 7

5. (a) Discuss coefficient of performance of a windmill rotor and the aerodynamic considerations in windmill design. 7

(b) State the principle of operation of acidic fuel cells and explain the operating characteristics of fuel cells. 7

6. (a) Explain the use of hydrogen as a source of renewable energy. 7

(b) Briefly describe the properties of thermoelectric materials. 7

7. (a) What is meant by Geothermal Energy ? What are the problems associated with the conversion of geothermal energy into electrical energy ? **7**

   (b) With the help of a suitable diagram, explain the principle of ocean thermal energy conversion system. **7**

8. Write short notes on any *four* of the following : $4\times3\frac{1}{2}=14$

   (a) Kyoto Protocol

   (b) Earthquakes and Volcanoes

   (c) Fusion Plasma Generators

   (d) Energy Plantation

   (e) Producer Gas

   (f) Solar Pumping

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