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Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech (EE) PT (Sem.-9)**  
**NON-CONVENTIONAL ENERGY AND AUDITING**  
Subject Code : BTEE-803  
M.Code : 75644

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A****1. Answer briefly :**

- a. What do you mean by thermal efficiency? Write any two factors which effects the efficiency of the converter.
- b. List the various losses associated with MHD generator.
- c. Discuss in brief the economic aspects of thermoelectric generators.
- d. Explain the principle of operation of tidal energy.
- e. What is figure of merit? Discuss.
- f. What is Photovoltaic effect? Discuss.
- g. Discuss the significance of solar collectors.
- h. What is the difference between a fuel cell and a battery? Explain.
- i. What do you mean by polarisation? Explain.
- j. Write down the advantages of wind power energy.

**SECTION-B**

2. Explain the need and growth of alternate energy sources. Also discuss the basic scheme and application of direct energy conversion.
3. With the following specifications for MHD generator, calculate the open circuit voltage and maximum power output.

Plant area =  $0.25\text{m}^2$ ; distance between plates =  $0.5\text{m}$ ; Flux density =  $2\text{Wb/m}^2$ ; average gas velocity =  $10^3\text{m/s}$ ; gas conductivity =  $10\text{ mho/m}$

4. Explain (in brief) the construction of thermoelectric generators.
5. Discuss various characteristics of photovoltaic cells. Discuss the scenario of solar energy in India.
6. What do you mean by geothermal energy? Write down the advantages and disadvantages of geothermal energy forms.

**SECTION-C**

7. What is a fuel cell? Describe the principle of working of a fuel cell with reference to hydrogen-oxygen cell. Also write down its applications.
8. Discuss :
  - a. Seebeck, Peltier and Thomson effects
  - b. Types of MHD materials
9. Explain the following :
  - a. Solar Furnaces
  - b. Bio-mass energy

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**