

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech.(ME) (Sem.-7)**  
**NON CONVENTIONAL ENERGY RESOURCES**  
Subject Code : DE-7-2  
M.Code : 59062

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. Write briefly :**

- a. Enumerate the limitations of non-renewable energy sources.
- b. Why renewable energy generation and production is treated as a measure of Nation's development?
- c. How solar radiation can be measured?
- d. Define solar irradiance.
- e. List out the classification of wind mills.
- f. List out some organic materials used in bio-mass plant.
- g. What are the environment impacts of geothermal energy?
- h. List out various types of Geothermal resources.
- i. Enumerate the disadvantages of MHD generation.
- j. Explain the working principle of Thermoionic Converter.

### SECTION-B

2. Comment on growth of renewable energy sector in India.
3. Discuss the construction and working of Liquid flat plate collector with a neat sketch.
4. What are the main types of OTEC power plants? Describe their working in brief.
5. Explain with neat sketches, the operation of a geothermal power plant.
6. With the help of neat diagram, explain how thermo electric generator can be used for utility power generation as well as waste heat utilization.

### SECTION-C

7.
  - a. Write the advantages and disadvantages of concentrating collectors over flat-plate types of solar collectors.
  - b. Mention the application of fuel cells and explain anyone application.
8.
  - a. Discuss in detail the operation and control of a wind turbine. How the variations of wind velocity and its directions are taken care?
  - b. Write a short note on any one type bio-gas plant giving a neat sketch.
9.
  - a. Write short note on any one of the following :
    - i) Solar Ponds
    - ii) Performance economic aspects and applications of thermo ionic generators
  - b. State the basic principle of tidal energy production and explain major components of tidal power plant.

**NOTE : Disclosure of identity by writing mobile number or making passing request on any page of Answer sheet will lead to UMC case against the Student.**