

Roll No.

Total No. of Pages : 02

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B.Tech.(ME) (Sem.-6)
NON CONVENTIONAL ENERGY RESOURCES

Subject Code : DE/ME-1.3

M.Code : 71245

Date of Examination : 12-07-22

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION 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 are the advantages and limitations of renewable energy sources?
- b) What are the practical difficulties in exploiting non-conventional energy resources?
- c) Explain the reason why solar energy system alone is not preferred for use in building services.
- d) Define the following terms:
 - (i) Altitude angle (ii) Incident angle
- e) What prohibits large scale utilization of wind power for electricity generation?
- f) Briefly describe (i) Seebeck effect (ii) Peltier effect.
- g) Explain the working of thermoelectric generators.
- h) Classify the several types of fuel cells.

- i) What are the different sources of geothermal energy?
- j) State the important forest biomass resources.

SECTION-B

- 2. Define the term energy. Explain its significance in context of techno-socio-economic development.
- 3. Describe the principle of solar photovoltaic energy conversion. Explain the mechanism of photoconduction in a PV cell.
- 4. What are the different sources of geothermal energy? Categorize the different geothermal sources.
- 5. Describe the working principle, advantages and benefits of fluidized bed gasifier.
- 6. Discuss the principle and working of sea wave and tidal energy conversion system.

SECTION-C

- 7.
 - a) Explain the basic principle of MHD generator. Further, discuss the practical problems associated with MHD power generation.
 - b) Describe the main consideration in selecting a site for wind generators.
- 8.
 - a) Discuss the performance and limitations of various fuel cells available.
 - b) Explain the principle and functioning of a typical fuel cell. What are the various reactions tried in experimental cells?
- 9.
 - a) Describe a binary cycle geothermal power plant giving a neat sketch.
 - b) Explain the principle of operation of a simple single-effect tidal power plant.

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.