

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (OLD) EXAMINATION – SUMMER 2022****Subject Code:161904****Date:08/06/2022****Subject Name:Alternate Energy Sources****Time:10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) What are the conventional and non-conventional energy sources? Describe briefly. **07**
- (b) Define terms: Altitude angle, Incident angle, Zenith angle, Solar Azimuth angle, latitude angle, Declination angle, Hour Angle. **07**
- Q.2** (a) What is the basic principle of ocean thermal energy conversion (OTEC)? **07**
- (b) How solar water heating are classified? Explain working of Thermo Syphon water heating system with neat sketch. **07**
- OR**
- (b) What is the Solar Still ? Explain with neat sketch. **07**
- Q.3** (a) What are the main applications of a solar pond? Describe briefly. **07**
- (b) List out the types of Solar concentrating collector. Explain construction and working of Compound Parabolic Concentrator (CPC) with neat sketch. **07**
- OR**
- Q.3** (a) Discuss the factors which affect the bio gas production in detail. **07**
- (b) Explain construction and working of pyranometer with neat sketch. **07**
- Q.4** (a) Explain construction and working of KVIC biogas plant with neat sketch. **07**
- (b) Explain Tidal power plant with double basin system. **07**
- OR**
- Q.4** (a) Explain combined steam and gas turbine power plant with neat sketch. **07**
- (b) Classify types of Energy audit. Discuss them in details. **07**
- Q.5** (a) List the advantages and disadvantages of Wind Energy. **07**
- (b) What is Co-generation process? Explain Gas Turbine Co-generation system with neat sketch. **07**
- OR**
- Q.5** (a) Define geothermal source. Classify and explain geothermal sources. **07**
- (b) State MHD principle. Explain open MHD with neat diagram. **07**
