

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2020****Subject Code:2170505****Date:30/01/2021****Subject Name:Energy Technology****Time:10:30 AM TO 12:30 PM****Total Marks: 56****Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) State various properties of Hydrogen. **03**
 (b) Explain the terms: Nuclear Fission and fusion. **04**
 (c) What is biomass? Classify biogas plants and explain any one in brief. **07**
- Q.2** (a) Explain Proximate analysis of fuel in brief. **03**
 (b) What are criteria for site selection of wind mill? **04**
 (c) Enlist different geothermal energy resources and explain the heat extraction from hot dry rocks. **07**
- Q.3** (a) Write advantages of closed cycle OTEC system over open cycle OTEC system. **03**
 (b) Describe washability curve in brief. **04**
 (c) What is Fuel Cell? Describe in detail about ion exchange membrane cell with neat diagram. **07**
- Q.4** (a) Write a short note on anthracite coal. **03**
 (b) Explain the term coking and caking of coal in brief. **04**
 (c) List out various fuel cell. Explain in detail about hydrogen-oxygen fuel cell with neat diagram. **07**
- Q.5** (a) Write short note on components of nuclear reactor with neat figure. **03**
 (b) Define primary energy sources and secondary fuels. List out various conventional and non conventional energy sources respectively. **04**
 (c) Explain in detail about the magnetic field and super conductivity for Magneto Hydro-Dynamic (MHD) power generation. **07**
- Q.6** (a) List out basic components of wind energy conversion systems (WECS). State various applications of wind energy. **03**
 (b) Discuss in brief: Composition of coal **04**
 (c) Describe MHD open cycle system. What are the benefits of MHD power generation? **07**
- Q.7** (a) Explain the terms: Energy management, Energy audit and conservation. **03**
 (b) Explain in brief about components of tidal power plant. **04**
 (c) Define solar collector. Explain liquid heating flat-plate collectors in detail. **07**
- Q.8** (a) Differentiate dry and wet washing methods of coal. **03**
 (b) Explain in brief any one of the fossil fuel methods of hydrogen production. **04**
 (c) Explain in detail about Solar pond. **07**
