

**III B. Tech I Semester Supplementary Examinations, July -2023**  
**RENEWABLE ENERGY SOURCES**

(Common to CE, ME, ECE,CSE,IT,AGE,CSE(AI&DS), CSE(AI&ML),CSE(CS),CSE(IOT),AI&DS)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**

All Questions Carry Equal Marks

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**UNIT-I**

1. a) Explain in detail various kinds of renewable energy sources and their potential and discuss the solar energy option. [7M]
- b) What are the advantages and disadvantages of photo voltaic solar energy conversion? [7M]

(OR)

2. Explain about solar pond, solar water heater and solar green house. [14M]

**UNIT-II**

3. a) Explain the basic operation of wind energy conversion systems. [7M]
- b) Explain the process of site selection of WECS. [7M]

(OR)

4. a) Explain the how the energy of the wind is extracted. [7M]
- b) Explain the types of WECS in detail. [7M]

**UNIT-III**

5. a) What is biomass and what are the ingredients that come under biomass in detail? [7M]
- b) What is photosynthesis and how it is related to biomass. [7M]

(OR)

6. a) Define geothermal energy and explain the sources of Geothermal energy. [7M]
- b) What are the problems and environmental impacts of Geothermal energy? [7M]

**UNIT-IV**

7. a) What is a tide and justify the underlying phenomenon how a tide is formed. [7M]
- b) Discuss different OTEC projects in India detail. [7M]

(OR)

8. a) Explain the principle of Tidal energy extraction. [7M]
- b) Explain the water energy conversion systems. [7M]

**UNIT-V**

9. a) Define fuel cell and its operation in detail. [7M]
- b) Explain the equivalent circuit of fuel cell. [7M]

(OR)

10. a) Explain the storage and applications of Hydrogen. [7M]
- b) Explain in brief about MHD power generation. [7M]

