Code No: RT21352   **R13**   SET - 1

II B. Tech I Semester Supplementary Examinations, May - 2019
RENEWABLE ENERGY SOURCES
(Agricultural Engineering)

Time: 3 hours   Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1. a) Differentiate between local clock time and local apparent time. (4M)
    b) What is meant by Betz criteria in wind energy conversion system? (4M)
    c) What is the process involved in the production of bio gas? (3M)
    d) What are the methods of harnessing the geothermal energy? (4M)
    e) What are the problems faced in harnessing ocean thermal energy? (4M)
    f) What are the faraday's laws used for fuel cells? (3M)

PART –B

2. a) What are the main components in of a concentrating collector? Explain the functions of each. (8M)
    b) Describe the principle of working and differences between pyrheliometer and pyranometer. (8M)

3. a) Classify the different methods of storing solar energy? Describe the thermal energy storage system. (8M)
    b) Describe why a tall tower is essential for mounting a horizontal axis wind turbine. (8M)

4. a) With suitable diagram, explain the working principle of Janatha model fixed dome digester. (8M)
    b) Describe the process of bio-gas generation. List the factors affecting the generation of bio-gas. (8M)

5. a) Explain hot dry rocks resource of geothermal energy and how they can be exploited as source of energy? (8M)
    b) With the help of neat diagram, explain the working of liquid dominated single flash steam system. (8M)

6. a) Describe the closed cycle OTEC system mention its advantages and limitations. (8M)
    b) What are the advantages and limitations of wave energy conversion? (8M)

7. a) What is See-beck effect and Joule-Thomson effect? Explain in detail. (8M)
    b) What is criterion used for the selection of fuels in the fuel cells? Explain. (8M)