

Code No: R1621352

R16**SET - 1****II B. Tech I Semester Regular Examinations, October/November - 2017****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 **FOUR** Questions from **Part-B**

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**PART -A**

1. a) Distinguish between flat plate and concentrating collectors. (3M)
- b) Write short notes on potential of wind in India? (3M)
- c) State the advantages of anaerobic digestion? (2M)
- d) What are the environmental issues from Geothermal plant? (2M)
- e) Mention the applications of OTEC systems. (2M)
- f) Write short notes on Seebeck effect. (2M)

**PART -B**

2. a) Describe the flat plate collectors with the help of neat sketch? (7M)
- b) Define solar constant. What is its standard value? (7M)
3. a) Using Betz model of a wing turbine, derive the expression for power extracted from wind? (7M)
- b) With the help of schematic diagram explain technique of solar heating & cooling? (7M)
4. a) With a neat sketch, describe working of a dome and drum type biogas plant? (7M)
- b) Define biomass. Explain in detail about its resources? (7M)
5. Explain with neat sketches, the operation of a geothermal power plant. (14M)
6. a) Discuss the theory and working principle of ocean thermal energy conversion (OTEC) system. (7M)
- b) Describe the single basin arrangement in tidal power generation. (7M)
7. a) Compare  $H_2O$  acidic fuel cell with  $H_2O$  alkaline fuel cell. (7M)
- b) Explain in detail about practical MHD generator? (7M)