

Code No: **R42025****R10****Set No. 1****IV B.Tech II Semester Supplementary Examinations, July/August - 2017****NON CONVENTIONAL SOURCES OF ENERGY****(Electrical and Electronics Engineering)****Time: 3 hours****Max. Marks: 75****Answer any FIVE Questions****All Questions carry equal marks**

- 1 a) Explain the following terms related to Solar radiation Geometry:
i) Altitude Angle ii) Zenith Angle
iii) Solar Azimuth angle iv) Surface Azimuth angle [8]
b) Explain any one instrument in detail for the measurement of Solar radiation [7]
- 2 a) Explain the main components of a flat – plate Solar collector with a neat diagram [8]
b) Compare between the Concentrating Collectors and Flat plate Collectors. [7]
- 3 a) Explain the requirement of a Maximum Power point technique in a Solar energy extraction [8]
b) What is a battery energy storage system and explain its usage in detail [7]
- 4 a) Explain the main considerations in selecting a site for Wind generators [7]
b) Derive the expression for the power developed due to Wind [8]
- 5 a) What is meant by Wet fermentation and Dry fermentation and explain them in detail [7]
b) How are Gasifiers classified? What is Pyrolysis? [8]
- 6 a) List and explain the different categories of Geothermal Sources [8]
b) What are the advantages and disadvantages of Geothermal energy forms? [7]
- 7 a) What are the advantages and limitations of Wave energy conversion [8]
b) Explain in detail about Small head hydro power development [7]
- 8 a) Explain the need for Energy Conversion in detail [8]
b) What are fuel Cells and explain the operating principle of it [7]