

Code No: **R41033****R10****Set No. 1****IV B.Tech I Semester Supplementary Examinations, February/March - 2018****ALTERNATIVE SOURCES OF ENERGY****(Mechanical Engineering)****Time: 3 hours****Max. Marks: 75****Answer any FIVE Questions
All Questions carry equal marks**

- 1 a) What are conventional and unconventional energy sources? Explain in detail. [8]
b) Discuss about sun-earth relation, extra terrestrial and terrestrial solar radiation. [7]
- 2 a) Classify solar concentrated solar collectors. Explain the working of mirror strip solar collector. [7]
b) With a neat sketch explain the working of distributed heliostat point focusing reflector and write its applications. [8]
- 3 a) Classify solar energy storage systems. Explain the working of sensible heat storage system. [8]
b) With a neat sketch explain the working of solar distillation plant. [7]
- 4 a) Derive the expression to calculate maximum power developed in case of horizontal axis turbine. [8]
b) With a neat sketch explain the working of horizontal axis wind turbine. [7]
- 5 a) Explain the construction and working of KVIC (Kadhi and Village Industries Commission) digester. [8]
b) Explain the factors to be considered for installation of Bio gas plant. [7]
- 6 a) Discuss about Geothermal energy potential in India. Write the applications of Geothermal energy. [7]
b) Explain the working of vapour dominant geothermal power plant. [8]
- 7 a) Derive the expression to estimate power developed in simple single basin system. [7]
b) Explain the working of closed cycle OTEC plant and write its advantages over open cycle plant. [8]
- 8 a) What is direct energy conversion system? Name the different direct energy conversion systems available? Write the advantages limitations and applications of direct energy conversion system? [7]
b) With a neat sketch explain the working of photo voltaic energy conversion system and write its applications. [8]