

Code No: 156EA

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech III Year II Semester Examinations, February/March - 2022****RENEWABLE ENERGY SOURCES****(Common to CE, ME, ECE, CSE, IT)****Time: 3 Hours****Max. Marks: 75**

**Answer any five questions**  
**All questions carry equal marks**

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- 1.a) Explain the importance of renewable energy sources and their potential in Indian energy sector.
- b) Discuss about Modern electronic controls of power systems. [7+8]
- 2.a) Discuss the performance characteristics of Horizontal axis wind turbine.
- b) Explain the speed control used in wind power energy analysis of small generating systems. [7+8]
- 3.a) List out the differences between flat plate collector and concentrated collector.
- b) Explain with a neat sketch, the working of photo-voltaic cell. Draw I-V characteristics. [7+8]
- 4.a) Describe how hydrogen can be used as an alternate fuel for motor vehicles.
- b) Write a short note on:
  - i) Seebeck, Peltier ii) Fuel cells [7+8]
- 5.a) Explain Self-Excited Induction Generator.
- b) Discuss the interconnected and stand-alone operation of induction generators. [7+8]
- 6.a) Discuss speed and voltage control of self-excited induction generators.
- b) Explain Economical aspects of induction generators. [8+7]
- 7.a) Explain compressed air energy storage system.
- b) Explain pumped energy storage system. [8+7]
- 8.a) Discuss standards and codes for inter connection of renewable energy sources to grid.
- b) Elaborate interconnection technologies of alternate energy sources. [8+7]

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