

Code No: 156EA

R18

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, August/September - 2021

RENEWABLE ENERGY SOURCES

(Common to CE, ME, ECE)

Time: 3 Hours

Max. Marks: 75

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

1. What is distributed generation? What are the effects of DG on a transmission system? [15]
- 2.a) What are renewable sources of energy? Enumerate the differences between renewable and nonrenewable sources of energy.
b) What are the specifications that the designer needs to follow before purchasing a wind turbine? [8+7]
- 3.a) How is PV cell Characteristic influenced by temperature?
b) Explain the aspects of hydrogen as a fuel cell. [8+7]
- 4.a) What are the applications of Photovoltaic Solar Energy?
b) What is meant by fuel cell equivalent circuit? Explain. [7+8]
- 5.a) What are the power and losses generated in an induction generator?
b) What are the economic aspects of an induction generator? [8+7]
- 6.a) Explain the principle of operation of an induction generator.
b) Write a short note on interconnected and stand-alone operation of an induction generator. [8+7]
- 7.a) Explain the economic aspects of energy storage systems.
b) Explain pumped hydroelectric storage system with the help of a neat diagram. [7+8]
- 8.a) Briefly explain conversion technologies for injection of alternative energy power to the grid.
b) Write a short note on Synchronous Generator Interconnection System. [9+6]

---ooOoo---