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Question Paper Code : 40985

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018

Eighth Semester

Electrical and Electronics Engineering

EE 6009 – POWER ELECTRONICS FOR RENEWABLE ENERGY SYSTEMS

(Regulations 2013)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. What are the advantages of using grid connected solar PV system ?
2. Mention the factors involved in biomass conversion.
3. Draw the angular relationship of abc and dq winding in an induction generator.
4. What are the advantages of permanent magnet synchronous generator ?
5. Draw the block diagram of solar photovoltaic system.
6. What are the factors involved in battery sizing ?
7. What are the classifications in wind energy conversion system based on electrical power output ?
8. List out the problems involved in grid connection.
9. What is the need for hybrid systems ?
10. Draw the PV characteristics of solar PV system and mark the maximum point.

PART – B

(5×16=80 Marks)

11. a) Briefly explain the working principle of fuel cell. (16)

(OR)

- b) Discuss the impact of following renewable energy generation on environment. (16)

i) ocean energy ii) wind energy system.



12. a) Explain doubly fed induction generator with neat sketch. (16)
(OR)
b) Discuss in detail about the construction and working of permanent magnet synchronous generator. (16)
13. a) Explain with a neat diagram, a power electronic circuit to interface wind electrical system to the grid. (16)
(OR)
b) Discuss the control strategy used in grid interactive inverters. (16)
14. a) Briefly explain the grid integrated SCIG based wind energy conversion system. (16)
(OR)
b) Write a detailed note on standalone operation of photovoltaic system. (16)
15. a) Explain briefly about switched configuration of Diesel-PV hybrid system. (16)
(OR)
b) Explain the following methods of MPPT control algorithm. (16)
i) Incremental conductance method
ii) Fuzzy logic controller.