Reg. No. : | | | | | | | | | | |

Question Paper Code: 39321

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

Elective

Electrical and Electronics Engineering

01UEE921 - POWER ELECTRONICS FOR RENEWABLE ENERGY SYSTEMS

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. What are the environmental aspects of electric energy conversion?
2. Mention some organic materials used in bio mass plant.
3. What are the advantages of DFIG?
4. What is the need of active crowbar in DFIG?
5. List the limitations of matrix converter.
6. What are matrix converters?
7. What are the draw backs of stand-alone solar system?
8. Define solar insolation.
9. List out the various types of hybrid renewable energy systems.
10. Write about the types of hybrid renewable energy system.

PART - B (5 x 16 = 80 Marks)

11. (a) Write short notes on:

    (i) Impact of renewable energy on environment (8)

    (ii) Hybrid renewable energy system (8)

Or

(b) (i) Explain the design and principle of operation of fuel cell in detail. (10)

(ii) List out the classification of fuel cell. (6)

12. (a) Draw the schematic diagram of PMSG and explain the constructional features principle of operation in detail and also discuss the characteristics and issues briefly. (16)

Or

(b) Explain the theory of operation of a doubly fed induction generator. (16)

13. (a) Draw the schematic of boost converter and explain the operational detail. (16)

Or

(b) Describe using a diagram the working of a matrix converter as an inverter. (16)

14. (a) Explain the effect of wind generator in the network. (16)

Or

(b) Explain the operation of grid integrated PMSG system with neat block diagram. (16)

15. (a) Explain the different control algorithm of maximum power point tracking for solar system. (16)

Or

(b) Discuss about the need for hybrid system. (16)

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