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

Question Paper Code: 39321

B.E. / B.Tech. DEGREE EXAMINATION, NOV 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. List out the salient features of renewable energy sources.
2. Mention some organic materials used in bio mass plant.
3. Define Magnetic synthesizers.
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. Label the basic block diagram of WECS.
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 CUK 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 in detail of the standalone operation of fixed and variable speed energy Conversion system. (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) Draw the block diagram of the Hybrid Renewable energy system which integrates Wind energy system and Solar PV system and explain the operation in detail. Also explain the issues and challenges in the operation of Hybrid systems. (16)