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M.E. / M.TECH. DEGREE EXAMINATIONS, MAY 2019

Second Semester

PD18017- POWER ELECTRONICS FOR RENEWABLE ENERGY SYSTEMS

(Power Electronics and Drives)

(Regulation 2018)

Time: Three Hours

Maximum : 100 Marks

Answer **ALL** questions

PART A - (10 X 2 = 20 Marks)

1. What is GHG emission?
2. List various types of devices available for capturing wave power.
3. State the principle of PMSG.
4. State the differences between induction generator and synchronous generator.
5. When is an inverter said to be grid interactive?
6. Sketch the block diagram of a grid-integrated PV system.
7. Draw the C_p Vs TSR curves for different types of wind turbine rotors.
8. Differentiate between fixed and variable speed wind energy conversion systems.
9. Why is it necessary to go for hybrid renewable energy systems?
10. State the advantages of PV-Diesel hybrid systems.

PART B - (5 X16 = 80 Marks)

11. (a) Explain the impact of renewable energy generation on environment in detail. (16)

(OR)

- (b) Explain the design and principle of operation of general Fuel cell and Fossil Fuel cell. (16)

12. (a) Explain the principle and operation of DFIG used for renewable energy conversion. Analyze the merits and demerits. (16)

(OR)

- (b) Explain the principle of operation and constructional features of squirrel cage induction generator with a neat diagram. Analyse the merits and demerits. (16)

13. (a) Discuss the different grid-connected configurations of solar energy conversion systems with neat sketches. **(16)**

(OR)

- (b) Discuss the different stand-alone or autonomous configurations of solar energy conversion systems with neat sketches. **(16)**

14. (a) Elucidate the issues involved in connecting wind energy systems to the grid. **(16)**

(OR)

- (b) Explain the stand alone operation of fixed and variable speed wind energy conversion systems. **(16)**

15. (a) Explain any 3 different configurations of hybrid renewable energy system in detail. **(16)**

(OR)

- (b) Describe MPPT algorithms used for PV systems with their salient features. **(16)**