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

Question Paper Code : 64058

M.E. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

Third Semester

Power Electronics and Drives

PX 7301 — POWER ELECTRONICS FOR RENEWABLE ENERGY SYSTEMS

(Common to M.E. Power Systems Engineering, M.E. Electrical Drives and Embedded Control and M.E. Energy Engineering)

(Regulations 2013)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State the impact of wind power penetration in power grid.

2. What are the limitations of solar power?

3. State the significance of induction generator based wind power generation.

4. Distinguish between SCIG and DFIG.

5. What are the limitations of AC voltage controller?

6. Write the various aspects of battery sizing.

7. What are the limitations of fixed speed induction generator based wind power conversion?

8. List few grid connection requirement of renewable power system.

9. State the need for hybrid renewable energy systems.

10. What are the significances of MPPT?

PART B — (5 × 16 = 80 marks)

11. (a) Compare the environmental aspects of renewable and non-renewable energy conversion system.

Or

(b) Describe the operation and control strategy of solar power conversion system.

12. (a) Explain the principle and operation of induction generator for wind energy conversion system.

Or

(b) Explain DFIG based wind power generation. Illustrate the independent dq control strategy adopted for dq control.

13. (a) Draw and explain the converter topologies used for solar power generation.

Or

(b) Explain about various aspects of grid interactive inverters.

14. (a) Describe about standalone operation of wind energy conversion system.

Or

(b) Explain about grid integrated PMSG based WECS.

15. (a) Explain the design aspects of hybrid renewable energy systems.

Or

(b) Explain MPPT for solar power generation system.

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