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Question Paper Code : 11161

M.E./M.Tech. DEGREE EXAMINATION, APRIL/MAY 2019.

Elective

Power Electronics and Drives

PS 5071 — DISTRIBUTED GENERATION AND MICROGRID

(Common to M.E. Power Systems Engineering)

(Regulation 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. How will you classify the energy resources?
2. List the advantages of renewable energy source.
3. What are the challenges associated with distributed generating system?
4. What is grid interconnection?
5. What are the issues met during islanding mode.
6. Define THD for current.
7. What is integrated AC/DC micro grid?
8. List the drivers used in micro-grid.
9. What is the need for smart grid?
10. Compare conventional grid with smart grid.

PART B — (5 × 13 = 65 marks)

11. (a) Explain in detail on the various distributed generation system in India.

Or

- (b) Explain with a neat block diagram about the operation of tidal power station.

12. (a) Explain the IEEE standards 1547 for interconnecting distributed resources to electric power systems.

Or

- (b) Briefly explain the different issues in the integration of distributed generation to power system.

13. (a) Explain the limits on operational parameters of grid integration.

Or

- (b) Explain the impact of power quality problems and state the methods to improve power quality.

14. (a) Explain about the typical structure and configuration of DC and AC micro grid.

Or

- (b) Draw and explain the modelling of micro sources and inverter for Microgrid.

15. (a) Explain with a neat block diagram about the operation of smart micro grid.

Or

- (b) Discuss in detail the islanding detection techniques in micro grid.

PART C — (1 × 15 = 15 marks)

16. (a) Design a grid-connected photovoltaic system of 1 kwp and explain the balance of system used in the grid connected PV system.

Or

- (b) Discuss the importance of smart grids and explain the challenges involved in the smart generation, transmission and distribution systems.