M.Tech. Electrical Power System (CBCS Pattern) Semester - III

PEPS31 - Self Study Course

P. Pages : 1 **GUG/S/23/11065**

Time : Three Hours Max. Marks : 70

Notes :
1. Attempt **any five** out of 8 questions.
2. All questions carry equal marks.
3. Due credit will be given to neatness and adequate dimensions.
4. Assume suitable data wherever necessary.
5. Illustrate your answers wherever necessary with the help of neat sketches.
6. Use of slide rule, Logarithmic tables, Steam tables, Mollier's chart, Drawing instruments, Thermodynamic tables for moist air, Psychrometric charts and Refrigeration charts is permitted.

1. a) What's the IEEE's role in smart grid and why is it important to have national smart grid Standards? Why is an international body needed to govern standards? **7**

b) Explain the present international scenario for the smart grid. **7**

2. a) Write a short note on Plug-in Hybrid Electric Vehicle (PHEV). **7**

b) Define the smart grid concept and explain its necessity. **7**

3. a) Write a note on: **7**

i) Smart sensors, ii) Smart substation,
iii) Substation automation iv) Feeder automation

b) Discuss the smart meters used in the smart grid. **7**

4. a) Explain home and building automation for the smart grid. **7**

b) Explain the outage management system in the smart grid? **7**

5. a) What are the various issues of grid-connected renewable energy sources? **7**

b) What are the economic issues related to microgrids? **7**

6. a) Describe the testbeds and benchmark system for smart grid. **7**

b) Explain voltage control in microgrid systems. **7**

7. a) Write short note on the Protection and control of microgrids. **7**

b) Discuss GIS and google mapping tools in the smart grid. **7**

8. a) What are the different network architecture technologies in smart grid? **7**

b) Write a note on Synchro Phasor Measurement Units (PMU). **7**

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