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17EE831

Eighth Semester B.E. Degree Examination, July/August 2022

Smart Grid

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain what you understand by 'Smart Grid'. Compare Today's Grid with Smart Grid. (10 Marks)
b. Explain in detail the functions of various components in Smart Grid. (10 Marks)

OR

- 2 a. Write short notes on the following :
i) PMU ii) Smart meter iii) Smart appliances iv) WAMS v) AMI. (10 Marks)
b. Explain Static Security Assessment (SSA) with neat diagram. (10 Marks)

Module-2

- 3 a. Explain voltage stability and voltage collapse. (10 Marks)
b. State various methods of angle stability Assessment and explain any one in detail. (10 Marks)

OR

- 4 a. What are the different classification of voltage stability explain them in detail. (10 Marks)
b. What are the Analysis Techniques for Steady State Voltage Stability? (10 Marks)

Module-3

- 5 a. State various optimization techniques and explain linear programming method. (10 Marks)
b. What are the computational challenges associated with use of advance tools for smart grid control. (10 Marks)

OR

- 6 a. Explain about the general level automation required for an effective operation of smart grid. (10 Marks)
b. Explain various barriers and their solution to grid development. (10 Marks)

Module-4

- 7 a. Explain the demand response issues in smart grid. (10 Marks)
b. Describe electric vehicle and Plug-in-hybrid vehicle. (10 Marks)

OR

- 8 a. What is Inter Operability? What is the state of the art in the interoperability in the smart grid components? (10 Marks)
b. What are the cyber security risk in each phase of project lifecycle of smart grid. (10 Marks)

Module-5

- 9 a. What are the research area that can strengthen the smart grid. (10 Marks)
b. What are the various objectives of technical research in smart grid? (10 Marks)

OR

- 10 a. Explain microgrid test bed-environment with neat diagram. (10 Marks)
b. Explain the following : i) Peak and time of use pricing ii) Unit commitment. (10 Marks)

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