

6E 6075

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B.Tech. VI Semester (Main) Examination, May-June 2015

Electrical Engineering

6EE5A Smart Grid Technology

(Common for EE,EX)

Time : 3 Hours

Maximum Marks : 80

Min. Passing Marks : 24

Instructions to Candidates:

Attempt any **five** questions, selecting **one** question from **each unit**. All questions carry **equal** marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Unit - I

1. a) Write a short note on “need of electricity”? Draw the power distribution diagram defining all three sections of power grid. (8)
- b) What are the initiatives taken by Indian economy for smart grid. (8)

OR

1. a) Differentiate the resilience grid and self healing grid. (8)
- b) Describe the opportunities and challenges relate to smart grid. (8)

Unit - II

2. a) Briefly explain the concept of plug in hybrid electric vehicle technology and it challenges. (8)
- b) What is smart substation? Describe the different types of smart substation. (8)

OR

2. a) What is distribution management system? what is the need of distribution management system in electric power distribution system? (8)
- b) Define Feeder Automation with its application. (8)

Unit - III

3. a) Explain how the smart meters can be play an important role to make a system smart. (8)
- b) What is Intelligent Electronic Device(IED)? Explain the functions of IED. (8)

OR

3. a) Explain the concept of phase measurement unit and also its applications. (8)
- b) Explain the communication network topologies used for data transmission in advanced metering infrastructure. (8)

Unit - IV

4. a) Highlight the issues related to power quality in smart grid. (8)
- b) Explain web based power quality monitoring. (8)

OR

4. a) What is electromagnetic compatibility? Describe relation voltage quality and electromagnetic compatibility. (8)
- b) Describe the concept of power quality conditioners related to smart grid. (8)

Unit - V

5. a) Write a short note on cyber security for smart grid. (8)
- b) Describe IP based protocols. (8)

OR

5. a) What is Broadband over power line? Explain working and feature of broadband over power line. (8)
- b) What do you understand by 'cloud computing' Explain briefly. (8)

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