

**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)