

Code: EE8T2C

**IV B.Tech - II Semester - Regular Examinations - March 2018**

**SMART GRID  
(ELECTRICAL & ELECTRONICS ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

**PART – A**

Answer *all* the questions. All questions carry equal marks

11 x 2 = 22 M

1.

- a) List the advantages of smart grid over conventional grid.
- b) What are the key characteristics of an intelligent power grid?
- c) Compare microgrid and smart grid technologies.
- d) List the applications of PMU.
- e) Explain the role and calculation of Power Transfer Distribution Factors.
- f) Explain the performance index used for ranking the severity of various contingencies.
- g) Explain the sensitivity based approaches in smart grid.
- h) How to identify the weakest bus with respect to voltage stability limits?
- i) Explain the various measures involved in the development of implementation plan of voltage stability.
- j) Discuss the functions of Non- Linear programming.
- k) What is dynamic programming ?

## PART – B

Answer any **THREE** questions. All questions carry equal marks.

3 x 16 = 48 M

- 2.a) Summarize the four key aspects of smart grid development. 8 M
- b) Explain the roles and functions of stakeholders in smart grid. 8 M
- 3.a) Discuss about the application of various forms of digital electronics as metering and measurement systems in smart grid. 8 M
- b) What is MAS technology? Explain in detail about its application in smart grid. 8 M
- 4.a) Discuss about the steady state contingency analysis. 8 M
- b) What is the need of contingency study in smart grid technology? List the types of contingency and application of contingency sets in smart grid technology. 8 M
- 5.a) Explain any two Voltage stability assessment techniques. 8 M

b) Discuss the direct and indirect methods for detecting voltage collapse points. 8 M

6.a) Explain the Integer programming method. 8 M

b) Compare the stochastic and chance constant programming. 8 M