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Total Number of Pages :1

M.TECH

M.TECH 2<sup>ND</sup> SEMESTER (AR 18) REGULAR EXAMINATIONS, APRIL/MAY 2019  
SMART GRIDS

Branch: PE, Subject Code:MPEPE2043

Time: 3 Hours

Max Marks : 70

**PART-A****(10 X 2=20 MARKS)****1. Answer the following questions.**

- Define smart grid?
- Briefly explain self healing?
- Explain the need of smart grid?
- Define Plug in hybrid energy vehicle?
- What is smart sensor?
- List out the technologies under smart grid distribution system?
- What are the storage components for smart energy management?
- Explain the services provided by DSI?
- Define Bay controller?
- Explain components of smart substation in brief?

**PART-B****(5 X 10=50 MARKS)****Answer any five questions from the following.**

- Q2. a. Explain the features of smart substation? [5]  
 b. How smart grid help the power quality improvement? [5]
- Q3. a. Explain the support system from DSI? [5]  
 b. Explain the evolution of electric metering ? [5]
- Q4. a. Explain the overview of Hardware of smart metering and its applications [5]  
 b. Explain the protocols for communication ? [5]
- Q5. a. Write short notes on cyber security and Distributed storage? [5]  
 b. Explain about sensing ,measurement ,control and automation technologies? [5]
- Q6. a. Describe fault diagnosis and fault location ? [5]  
 b. Explain faults in distribution system? [5]
- Q7. a. Explain about phase shifting transformer role in smart grid? [5]  
 b. Discuss about Distribution automation and Advanced metering infrastructure [5]
- Q8. Write Short notes on :
- Advantages of smart meters [5]
  - Smart substation block diagram [5]