

**B.TECH**  
**(SEM VII) THEORY EXAMINATION 2019-20**  
**INTRODUCTION TO SMART GRID**

Time: 3 Hours

Total Marks: 70

Note: Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A**

1. Attempt all questions in brief. 2 x 7 = 14
- Explain the smart grid and its importance in power system.
  - What are the Opportunities & Barriers of Smart grid?
  - What is the Difference between conventional & smart grid
  - Explain CDM opportunities in smart grid..
  - Give the short note on PHEV.
  - State and explain the short note on WAMS.
  - State and explain thin film solar cells.

**SECTION B**

2. Attempt any three of the following: 7 x 3 = 21
- What do you mean by grid? Write a brief note on evaluation of grid.
  - Write a short note on "need of electricity"? Draw the power distribution Diagram defining all three sections of power grid.
  - Define smart grid concept & Explain its necessity.
  - Write note on, "real time pricing.
  - List different smart appliances and describe an integration of smart Appliance into grid for home and automation building.
  - Explain the concept of micro grid .its need and application

**SECTION C**

3. Attempt any one part of the following: 7 x 1 = 7
- Why cyber security is of prime importance in smart grid & how it can be Achieved?
  - Describe the desirable features and characteristics of an ideal smart grid
4. Attempt any one part of the following: <https://www.aktuonline.com>
- Briefly explain the concept of plug in hybrid electric vehicle technology And it challenges.
  - What is resilient and self-healing grid? Describe principle of self-healing grid and its need in smart grid networks
5. Attempt any one part of the following: 7 x 1 = 7
- Explain following network architecture types in smart grid communication entities:  
(i) Local Area Network. (ii) Wide Area Network.
  - Explain the outage management system principles and integration requirements.
6. Attempt any one part of the following: 7 x 1 = 7
- What are major global smart grid initiatives in India? What are The prominent international policies in smart grid presently.
  - Explain web based power quality monitoring.
7. Attempt any one part of the following: 7 x 1 = 7
- What is electromagnetic compatibility? Describe relation voltage quality And electromagnetic compatibility?
  - Describe the concept of power quality conditioners related to smart grid.