Subject Code: REE072

PAPER ID-310076

Roll No: | | | | | | | | | | | | | |

B.TECH.
(SEM VII) THEORY EXAMINATION 2020-21
INTRODUCTION TO SMART GRID

Time: 3 Hours ***Total Marks: 70***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a.	**Define** and Explain the term IED.
b.	What do you understand by Smart Sensors? **Discuss** how they are different from normal Sensors.
c.	**Explain** WAMS and its operation.
d.	**Illustrate** the highlights of Substation Automation.
e.	**Outline** the differences between Microgrid and Smart grid
f.	**Analyze** the Power Quality issues of Grid connected Renewable Energy Systems
g.	**Summarize** the Protection and control of a Microgrid

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

a.	Define Smart grid concept and explain its necessity
b.	Write note on "Real-Time Pricing".
c.	Explain how the reliability of Smart grid can be enhanced by integrating Intelligent Electronic Devices (IEDs)
d.	Write a note on "Web based Power Quality Monitoring"
e.	State and Explain the issues of interconnecting Micro grid and Utility grid.

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Explain fundamentals of Phasor Measurement Units (PMUs) and their application in Power System
(b)	Illustrate Power Quality monitoring concept.

4. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Explain any two Power Quality conditioners with diagram
(b)	Differentiate the working of DVR and STATCOM

5. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Explain the role of Smart Meters in a Smart grid
(b)	Illustrate what do you understand by a Smart Substation and its working

6. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Discuss the various National and International policies facilitating the concept of Smart grid
(b)	Differentiate between a Convention grid and a Smart grid

7. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Write short note on Geographic Information System (GIS) and its components
(b)	Explain the concept of Micro grid and its need and applications