PAPER ID-420214

Roll No:

BTECH
(SEM VIII) THEORY EXAMINATION 2021-22
INTRODUCTION TO SMART GRID

Time: 3 Hours   *Total Marks: 100*

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

SECTION A

1. **Attempt *all* questions in brief.**   **10*2=20**

Q.no	Questions	Marks	CO
(a)	What is the need of Smart Meters?	2	2
(b)	Define the term Smart Grid.	2	1
(c)	Discuss about the concept of Smart Grid Technologies.	2	2
(d)	What is the concept of Smart Substations?	2	3
(e)	What do you mean by Self-Healing Grid?	2	1
(f)	What do you mean by Power Quality in Smart Grid?	2	5
(g)	What do you mean by Microgrids?	2	4
(h)	What is the concept of Feeder Automation?	2	3
(i)	What do you mean by Energy Resources?	2	4
(j)	What do you mean by the Power Quality Management?	2	5

SECTION B

2. **Attempt any *three* of the following:**   **10*3 = 30**

Q.no	Questions	Marks	CO
(a)	Describe about the Power Quality issues of Grid connected Renewable Energy Sources.	10	5
(b)	Describe in detail about the Real Time Prizing under the Smart Grid Technologies.	10	2
(c)	Describe about the Intelligent Electronic Devices (IED) and their application for monitoring and protection.	10	3
(d)	Describe in detail about the need and application areas of Microgrids.	10	4
(e)	What is the Concept of Smart Grid? Discuss in detail about the Evolution of Electric Grid.	10	1

SECTION C

3. **Attempt any *one* part of the following:**   **10*1 = 10**

Q.no	Questions	Marks	CO
(a)	Discuss in brief about the Power Quality Conditioners for Smart Grid.	10	5
(b)	Discuss about the following: (i) Automatic Meter Reading (AMR) (ii)Outage Management System (OMS)	10	2

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4.   **Attempt any *one* part of the following:**   **10 *1 = 10**

Q.no	Questions	Marks	CO
(a)	Discuss in detail about the Opportunities & Barriers of Smart Grid.	10	1
(b)	Discuss about the following: (i) Wide Area Measurement System (WAMS). (ii) Compressed Air Energy Storage.	10	3

5.   **Attempt any *one* part of the following:**   **10*1 = 10**

Q.no	Questions	Marks	CO
(a)	Describe in detail about the Protection and control of Microgrids.	10	4
(b)	Discuss in brief about the Web based Power Quality monitoring in Smart Grids.	10	5

6.   **Attempt any *one* part of the following:**   **10*1 = 10**

Q.no	Questions	Marks	CO
(a)	Discuss about the following: (i) Plug in Hybrid Electric Vehicles (PHEV). (ii) Smart Sensors.	10	2
(b)	Mention about the difference between conventional and smart grid.	10	1

7.   **Attempt any *one* part of the following:**   **10*1 =10**

Q.no	Questions	Marks	CO
(a)	Describe about the PMUs application to monitoring & control of power system.	10	3
(b)	Describe in detail about the concept of Integration of renewable energy sources.	10	4