PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING
MID TERM EXAMINATION - OCT 2023

Semester : Semester VII - 2020　　　　　　　　　　**Date :** 2-NOV-2023
Course Code : EEE3034　　　　　　　　　　　　　**Time :** 11:30AM - 1:00PM
Course Name : Sem VII - EEE3034 - Smart Grid Technologies　　**Max Marks :** 60
Program : B. TECH　　　　　　　　　　　　　　　**Weightage :** 30%

Instructions:
(i) Read all questions carefully and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and non-programmable calculator are permitted.
(iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS　　　　　　　　　　**(5 X 2 = 10M)**

1. Why should we prioritize the widespread implementation of smart meters in our energy infrastructure?

   (CO1) [Knowledge]

2. Smart grid initiatives in India has focused on AT & C losses. What is AT & C loss. Define.

   (CO1) [Knowledge]

3. In the smart grid, the distribution domain communicates more closely with the operations domain in real-time to manage the power flows. Mention all the participators of distribution domain.

   (CO2) [Knowledge]

4. Standards in smart grid ensures improvement in economic performance. What is inter-operability in smart grids? Define.

   (CO2) [Knowledge]

5. What are the different benefits of Smart Grid Interoperability? Mention any four.

   (CO2) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS　　　　　　　　　　**(2 X 15 = 30M)**

6. How can we effectively address the multifaceted challenges of implementing smart grids, such as cybersecurity risks, regulatory hurdles, and the need for widespread infrastructure upgrades, in order to realize the full potential of this technology for a sustainable and resilient energy future?

   (CO1) [Comprehension]

7. In the intricate realm of energy management, market domain plays a pivotal role in regulating prices and communication. Can you illustrate the diverse participants within the Market Domain through a well-labeled diagram, and elucidate the functions and interactions of each participant in shaping our energy landscape?

(CO2) [Comprehension]

PART C

ANSWER THE FOLLOWING QUESTION   **(1 X 20 = 20M)**

8. What are the most critical characteristics and features that a smart grid must possess to not only enhance energy efficiency and reliability but also ensure sustainability in the face of evolving energy demands and environmental challenges?

(CO2) [Application]