SNS COLLEGE OF TECHNOLOGY
COIMBATORE-35

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Staff in Charge: **S. Bharath**   Course Code & Name: **19EEE308 : Smart Grid.**
Semester: **VII**   Class**: IV Year   B.E – EEE**   Academic Year: **2023-2024 (Even Semester)**

TWO MARKS QUESTION BANK

UNIT 1

1. How has the electric grid evolved throughout history?

The electric grid has undergone several transformations, starting with localized grids focused on specific locations, followed by interconnected regional grids, and now transitioning towards smarter and more automated systems.

2. What are the key features of a smart grid?

Smart grids integrate communication technologies and automation into traditional grids, enabling two-way energy flow, improved efficiency, demand response capabilities, and self-healing properties.

3. How do different organizations define "smart grid"?

The definition can vary depending on the focus. Engineers might emphasize automation and communication, while policymakers might highlight environmental benefits and energy security.

4. Why are smart grids needed?

Growing energy demands, increasing renewable energy integration, aging infrastructure, and the need for improved efficiency and resilience are key drivers for implementing smart grids.

5. What are some functions of a smart grid?

Smart grids can monitor energy consumption in real-time, optimize power flow, integrate renewable energy sources, manage peak demand, and enable automated responses to outages.

6. What are the potential opportunities and challenges associated with smart grids?

Opportunities include improved efficiency, reliability, and environmental benefits. Challenges include upfront investment costs, cybersecurity concerns, and the need for regulatory adaptation.

7. What are the key differences between conventional and smart grids?

Conventional grids are one-way systems with limited monitoring and control, while smart grids are two-way systems with advanced communication and automation capabilities.

8. What are the benefits of a resilient and self-healing grid?

These grids can automatically detect and respond to outages, minimizing downtime and improving overall system reliability.

9. Can you share some places of a successful smart grid implementation?

- Island of Pellworm, Germany
- Puducherry, India
- Pecan Street Project, Austin, Texas, USA

10. What is the current status of smart grid development in India?

India has launched several smart grid pilot projects and aims to create a nationwide smart grid infrastructure. However, challenges in financing and grid modernization remain.

11. What were the key milestones in the evolution of the electric grid?

The electric grid evolved from localized, isolated systems to interconnected networks, with major developments including the introduction of alternating current (AC), grid expansion, and advancements in control technologies.

12. Define the concept of a smart grid.

A smart grid is an advanced electrical grid that integrates digital communication and control technologies to enhance the efficiency, reliability, and sustainability of electricity delivery.

13. Define the term "resilient grid."

A resilient grid is one that can withstand and recover from disruptions, ensuring continuous power supply even in the face of challenges like natural disasters or cyber-attacks.

14. Why is there a need for a smart grid?

The need for a smart grid arises from the increasing demand for energy, integration of renewable sources, and the desire to improve grid efficiency, reliability, and sustainability.

15. Highlight a key difference between a conventional grid and a smart grid.

A key difference is the level of automation and digital communication in a smart grid, allowing for real-time monitoring and control compared to the traditional, less automated systems.

16. What does the term "self-healing grid" mean?

A self-healing grid is capable of automatically detecting and responding to faults or disruptions, isolating affected areas and restoring power without manual intervention.