



**SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR**  
Siddharth Nagar, Narayanavanam Road – 517583

**QUESTION BANK (DESCRIPTIVE)**

**Subject with Code : SMART GRIDS(18EE2119)**

**Course & Branch: M.Tech - PE**

**Year & Sem: I-M.Tech & II-Sem**

**Regulation: R18**

**UNIT –I**

1. Define smart grid concept and explain its necessity. [10M]
2. Explain the concept of robust and self healing grid. [10M]
3. Explain functions of smart grid components. [10M]
4. Explain how the automatic meter reading can make the system smarter. [10M]
5. List the smart appliances and describe an integration of smart appliances in to grid for home and building automation. [10M]
6. Explain outage management system. [10M]
7. Explain the plug in hybrid electric vehicles. [10M]
8. Describe substation and feeder automation. [10M]
9. Explain the stages on evaluation of smart grid. [10M]
10. Explain the smart substation. [10M]

**UNIT –II**

1. Explain how the reliability of smart grid can be enhanced by integrating intelligent electronic devices (IED) into it. [10M]
2. Explain IED application for monitoring and protection. [10M]
3. Explain smart metering and advantages of it. [10M]
4. Compare conventional metering and smart metering. [10M]
5. Explain phase measuring unit. [10M]
6. Explain wide area measurement system. [10M]
7. Explain the role of smart meters to make the system smart. [10M]
8. Explain about smart storage batteries. [10M]
9. Explain super conducting magnetic energy storage. [10M]
10. Explain pumped hydro and compressed air energy storage. [10M]

**UNIT –III**

1. Explain the concept of micro grid, and its need and applications. [10M]
2. State and explain the issues of interconnecting the micro grid with the utility grid. [10M]
3. Explain the protection and control of micro grid. [10M]
4. Compare micro grid and smart grid. [10M]
5. Describe the power quality issues of grid connected renewable energy sources. [10M]
6. Explain plastic and organic solar cells. [10M]
7. Explain thin film solar cells. [10M]
8. Explain variable speed wind generators. [10M]
9. Explain about fuel cell and micro-turbines. [10M]
10. Explain about capacitive power plants. [10M]

**UNIT –IV**

1. Explain the concept of power quality in smart grid. [10M]
2. Explain the importance of power quality in smart grid. [10M]
3. How the power quality can be improved in smart grid. [10M]
4. Explain the web based power quality monitoring system. [10M]
5. Draw the flow chart of procedure for monitoring power quality and issues of power quality monitoring. [10M]
6. Explain the Classification of the power quality compensator. [10M]
7. Explain the role of EMC in smart grid. [10M]
8. Explain about power quality control technologies. [10M]
9. Explain the issues about power quality monitoring and power quality measurement in smart grid. [10M]
10. Explain about power quality Audit and its applications. [10M]

**UNIT –V**

1. Explain the role of HAN in smart grid. [10M]
2. Explain about Neighborhood area network. [10M]
3. Explain about Wide area network. [10M]
4. Explain types and applications of ZigBee. [10M]
5. Explain the IP based protocols. [10M]
6. Explain cloud computing and its need. [10M]
7. Explain the necessity of cyber security for smart grid. [10M]
8. Explain about broadband over power line. [10M]
9. Explain Bluetooth, Wi-Fi and GPS. [10M]
10. Explain Wi-Max based communication and wireless mesh network. [10M]

Prepared by: **C.R.HEMAVATHI**