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

QUESTION BANK (DESCRIPTIVE)

Subject with Code : SMART GRIDS (20EE2119) **Year & Sem:** I-M.Tech & II-Sem

Course & Branch: PE **Regulation:** R20

UNIT –I

1	Describe about smart grid concept and explain its necessity.	[L2][CO1][12M]
2	What is the need of robust and self-healing grid?	[L2][CO1][12M]
3	Explain functions of smart grid components in detail.	[L2][CO1][12M]
4	How the automatic meter reading can make the system smarter?	[L3][CO1][12M]
5	List the smart appliances and describe an integration of smart appliances in to grid for home and building automation.	[L1][CO1][12M]
6	Illustrate the main steps in outage management system.	[L2][CO1][12M]
7	Explain the plug in hybrid electric vehicles.	[L2][CO1][12M]
8	Describe substation and feeder automation.	[L2[CO1]][12M]
9	Explain the stages on evaluation of smart grid.	[L1][CO1][12M]
10	Explain the smart substation with neat diagram	[L2][CO1][12M]

UNIT –II

1	Illustrate with diagram, how the reliability of smart grid can be enhanced by integrating intelligent electronic devices (IED) into it.	[L2][CO2][12M]
2	In detail, explain IED application for monitoring and protection.	[L2][CO2][12M]
3	Explain about smart metering and advantages of it.	[L2][CO2][12M]
4	Compare conventional metering and smart metering.	[L3][CO2][12M]
5	How the phase measuring unit works? Describe it in detail.	[L3][CO2][12M]
6	What is the need for wide area measurement system?	[L1][CO2][12M]
7	Explain the role of smart meters to make the system smart.	[L2][CO2][12M]

8	What is smart storage batteries and explain it with neat sketch.	[L2][CO2][12M]
9	Describe about super conducting magnetic energy storage along with neat diagram.	[L2][CO2][12M]
10	Explain pumped hydro and compressed air energy storage.	[L2][CO2][12M]

UNIT –III

1	Explain the concept of micro grid, and its need and applications.	[L1][CO3][12M]
2	State and explain the issues of interconnecting the micro grid with the utility grid.	[L1][CO3][12M]
3	Explain the protection and control of micro grid.	[L2][CO3][12M]
4	Compare micro grid and smart grid.	[L3][CO3][12M]
5	Describe the power quality issues of grid connected renewable energy sources.	[L1][CO3][12M]
6	Explain plastic and organic solar cells.	[L1][CO3][12M]
7	Define thin film solar cells and describe it with neat sketch.	[L2][CO3][12M]
8	List out variable speed wind generators and Explain them with neat diagrams.	[L2][CO3][12M]
9	Describe about fuel cell and micro-turbines with neat diagram.	[L1][CO3][12M]
10	Explain about capacitive power plants.	[L2][CO3][12M]

UNIT –IV

1	Explain the concept of power quality in smart grid.	[L1][CO4][12M]
2	What is the importance of power quality in smart grid.	[L1][CO4][12M]
3	How the power quality can be improved in smart grid.	[L3][CO4][12M]
4	Explain the web based power quality monitoring system.	[L2][CO4][12M]
5	Draw the flow chart of procedure for monitoring power quality and issues of power qualitymonitoring.	[L3][CO5][12M]
6	Classify of the power quality compensator.	[L1][CO5][12M]
7	What is the role of EMC in smart grid.	[L2][CO5][12M]
8	List out about power quality control technologies and explain it in detail.	[L1][CO5][12M]

9	Write about the issues about power quality monitoring and power quality measurement in smartgrid.	[L1][CO5][12M]
10	Explain about power quality Audit and its applications.	[L2][CO5][12M]

UNIT –V

1	What is the role of HAN in smart grid and explain it with neat sketch	[L2][CO6][12M]
2	Define Neighborhood area network. Write an overview about it	[L1][CO6][12M]
3	Illustrate about Wide area network.	[L2][CO6][12M]
4	Explain types and applications of ZigBee.	[L2][CO6][12M]
5	What is the need for IP based protocols and explain in detail.	[L2][CO6][12M]
6	Explain cloud computing and its need.	[L2][CO6][12M]
7	What is the necessity of cyber security for smart grid.	[L1][CO6][12M]
8	Explain about broadband over power line.	[L1][CO6][12M]
9	Compare Bluetooth, Wi-Fi and GPS.	[L3][CO6][12M]
10	Explain Wi-Max based communication and wireless mesh network.	[L1][CO6][12M]