

**Reg. No:**

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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)

**M.Tech I Year II Semester Regular Examinations October-2020**

**SMART GRIDS**

(Power Electronics)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

**UNIT-I**

- 1 a Define smart grid concept and explain its necessity. 8M  
b Write note on Real Time Pricing. 4M

**OR**

- 2 a Explain the plug in hybrid electric vehicles. 8M  
b Describe substation automation. 4M

**UNIT-II**

- 3 a Explain how the reliability of smart grid can be enhanced by integrating intelligent electronic devices (IED) into it. 6M  
b Compare conventional metering and smart metering. 6M

**OR**

- 4 a Explain the role of smart meters to make the system smart. 6M  
b Explain about smart storage batteries. 6M

**UNIT-III**

- 5 a Explain the concept of micro grid, and its need and applications. 6M  
b Explain variable speed wind generators. 6M

**OR**

- 6 a Describe the power quality issues of grid connected renewable energy sources. 8M  
b Compare micro grid and smart grid. 4M

**UNIT-IV**

- 7 a Explain the web based power quality monitoring system. 6M  
b Explain about power quality Audit and its applications. 6M

**OR**

- 8 a Explain the role of EMC in smart grid. 6M  
b Explain about power quality control technologies. 6M

**UNIT-V**

- 9 a Explain the role of HAN in smart grid. 6M  
b Explain the IP based protocols. 6M

**OR**

- 10 a Explain cloud computing and its need. 6M  
b Explain about Wide area network. 6M

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