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M.Tech. (EE)(2018 Batch) (Sem.-2)**SMART GRIDS****Subject Code : MTEE-203D-18****M.Code : 76105****Time : 3 Hrs.****Max. Marks : 60****INSTRUCTIONS TO CANDIDATES :****1.Attempt any FIVE questions out of EIGHT questions.****2.Each question carries TWELVE marks.**

1.
 - a) Describe the desirable features and characteristics of an ideal smart grid. What are major points which are forced drivers for demanding smart grid?
 - b) What are resilient and self - healing grid? Describe principle of self - healing grid and its need in smart grid networks.
2.
 - a) What are major global smart grid initiatives in India? What are the prominent international policies in smart grid presently?
 - b) Describe the driving elements of substation automation and functions of substation automation system.
3.
 - a) Explain the outage management system principles and integration requirements.
 - b) What are the PHEVs and V2G technology? What are the different advantages and disadvantages of these technology in existing power system?
4. Write a short note on the following (any **THREE**) :
 - a) Wide area measurement system
 - b) Need of GIS in smart grid system
 - c) Storage system and their role in smart grid environment.
 - d) Phase measurement unit





5.
 - a) What is a Fuel cell? Explain working principle with a suitable diagram of any Fuel cell.
 - b) What is a micro-grid? What are the different protection and control mechanism used in microgrid?
6.
 - a) What are the captive power plants? Explain with the help of a suitable example.
 - b) What are the different generators used in wind energy systems? Describe the role of different converters in renewable power conversion system.
7.
 - a) What is power quality? What are the different power qualities issues associated with the grid integrated renewable energy sources?
 - b) What is power quality monitoring? Describe briefly the various power quality conditioners used in smart grid environment.
8.
 - a) Explain following network architecture types in smart grid communication entities :
 - i) Local Area Network
 - ii) Wide Area Network
 - iii) Wi-Max based communication.
 - b) Describe the various layers of Internet protocol layers. Explain service modules types provided in cloud computing and role of cloud computing in smart grid

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

