

Total No. of Questions: 8]

SEAT No. :

P6588

[6181]-139

[Total No. of Pages :2

B.E (Electrical Engineering)

SMART GRID

(2019 Pattern) (Semester-VIII) (403150 C) (Elective-V)

Time : 2½ hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.*
- 2) *Figures to the right indicates full marks*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Assume suitable data if necessary.*
- 5) *Use of non Programmable calculator is allowed.*

- Q1)** a) Explain IEC 61850 communication standard list its functions. [4]
b) Explain the different functions of Advanced metering Infrastructure (AMI) [6]
c) Draw and explain functional Block diagram of smart meter [8]

OR

- Q2)** a) Explain IS 16444 standard comment on its Structure [4]
b) Explain the need of GIS in smart Grid [6]
c) Draw and explain functional Block diagram of smart substation [8]

- Q3)** a) List the important factors for assessment smart grid communication protocols [3]
b) With the help of neat diagram explain the communication Architecture of HAN with smart meter [6]
c) Explain the protocol Architecture of zigbee [8]

OR

- Q4)** a) List the important system constraints when developing security requirements in SG [3]
b) Explain the role of NAN with help of neat diagram [6]
c) Explain with the help of neat diagram WAMPAC [8]

P.T.O.

- Q5)** a) Differentiate between microgrid and smartgrid [4]
b) Explain with help of neat diagram microgrid topology with storage Technologies [6]
c) What is centralized and decentralized control of microgrid explain with help of neat diagram. [8]

OR

- Q6)** a) Define microgrid List the applications of microgrid [4]
b) Discuss the various microgrid operation strategies with help of neat diagram [6]
c) Explain the microgrid Architecture with help of neat diagram [8]
- Q7)** a) List the power quality issues with smart grid [3]
b) Explain the different types of data analytics in smart grid [6]
c) What are the key performance indicators for load forecasting [8]

OR

- Q8)** a) List the various reliability indices of smart grid [3]
b) Write a note on smart appliances [6]
c) Explain the different principle areas of home automation [8]