

- Note -
1. Question No. 1 is compulsory.
  2. Attempt any three questions out of remaining five questions.
  3. Assume suitable data if necessary & justify the same.
  4. Figures to the right indicate marks.

- Qu.1** Attempt any Four.
- (a) Explain the concept & functions of smart grid. [5]
  - (b) Distinguish between micro-grid & smart grid [5]
  - (c) Discuss the grid abnormal operation in distributed generation [5]
  - (d) What are the IEEE 1547 standards? List the IEEE 1547 series. [5]
  - (e) What is the role of energy storage in microgrid operation? [5]
- Qu.2** Discuss with diagram the typical structure and configuration of DC microgrid. [10]
- (a) [10]
  - (b) Discuss in brief the protection issues & anti islanding technique in microgrid operation [10]
- Qu.3** Describe in brief the control architectures of centralized & hierarchical control in micro grid. [10]
- (a) [10]
  - (b) What is smart grid? Discuss the future opportunities & barriers of Smart Grid. [10]
- Qu.4** Explain the Concept of Resilient & Self-Healing in smart grid [10]
- (a) [10]
  - (b) Write a note on Smart Substation & substation automation. [10]
- Qu.5** Discuss the micro-grid operation & function under grid synchronization mode. [10]
- (a) [10]
  - (b) Discuss the operation of microgrid in Grid connected and islanded mode, [10]
- Qu.6** Write a short note on (ANY-TWO) [20]
- (a)
    1. Smart Grid Technologies
    2. Home Area Network
    3. Intelligent Electronic Devices(IED)

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