

(3Hrs)

Marks: 80

N.B.

1. **Question No.1 is Compulsory.**
2. Answer any three out of remaining five questions
3. Assume any suitable data wherever required but justified the same
4. Illustrate answer with sketches wherever required

- Q 1 Answer **any four** from the following questions. (20)
- a. Illustrate the voltage control method of control power conditioning units.
 - b. Illustrate the concept of grid synchronization as one of the important Microgrid function.
 - c. Compare AC Microgrid with DC Microgrid.
 - d. Explain the term, substation automation and feeder automation.
 - e. Illustrate the impact of grid integration of renewable energy resources on existing power system in terms of power quality issues.
- Q 2 a) Illustrate any three communication network used for Microgrid. (10)
- b) Illustrate the power sharing and coordinated control of Microgrid. (10)
- Q 3 a) Give importance of islanding in case of grid connected micro grid. Also give the proper sequence of operation for successful islanding. (10)
- b) Enlist different renewable technologies. Explain the operation of any one technology in detail. (10)
- Q 4 a) Draw a block diagram on centralized control and explain its working, advantages and limitations. (10)
- b) Describe the active and reactive power control in a grid connected mode of Microgrid (10)
- Q 5 a) Illustrate different technologies used in the operation of smart grid. (10)
- b) Describe the resilience and self-healing characteristics of smart grid (10)
- Q 6 a) Illustrate the IEEE 1547 as a regulatory framework for the operation of Distributed Generations. (10)
- b) Describe the concept of smart grid. What is the necessity of smart grid? Explain the functions of smart grid. (10)

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