

Duration: 3hrs

MGSG

[Max Marks:80]

- N.B. : (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

- 1 Attempt any FOUR [20]**
- a** Define micro grid and state it's advantages.
 - b** Compare centralized and de-centralized control of micro grid.
 - c** Draw and elaborate a suitable diagram of AMI in smart grid
 - d** Define smart grid and elaborate it's need in current situation.
 - e** Compare characteristics of Solar PV and Wind energy source as a renewable energy sources
- 2 a** Compare non-conventional sources with respect to their suitability and characteristics in micro grid. **[10]**
- b** 'Energy storage devices play a very important role in micro grid.' Justify the statement. **[10]**
- 3 a** Draw schematic diagram of D.C. microgrid and elaborate it along with its advantages, disadvantages, and limitations. **[10]**
- b** Give importance of islanding in case of grid connected micro grid. Also give the proper sequence of operation for successful islanding. **[10]**
- 4 a** Draw a block diagram on hierarchical control and elaborate its working **[10]**
- b** What is black start? Does micro grid is helpful for it? Justify your answer. **[10]**
- 5 a** State inverter control modes and elaborate any one in detail. **[10]**
- b** Draw and elaborate a functional block diagram of smart meter **[10]**
- 6 a** Enlist various communication methods used for smart grid and elaborate any one in detail. **[10]**
- b** Describe the 'self-healing' characteristic of smart grid **[10]**
