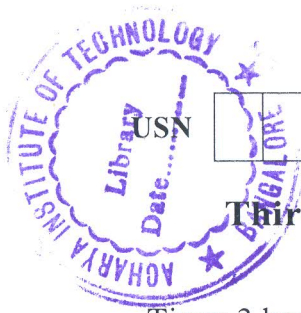


# CBCS SCHEME



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18EPS331

Third Semester M.Tech. Degree Examination, Dec.2019/Jan.2020

## Smart Grid

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

### Module-1

- 1 a. What is smart grid? Explain the overview of the technologies required for the smart grid. (10 Marks)
- b. Explain the various types of switching technique in smart grid. (10 Marks)

OR

- 2 a. Explain the various layers in ISO/OSI reference model. (10 Marks)
- b. Discuss the various standards for information exchange. (10 Marks)

### Module-2

- 3 a. Explain components involved in cryptography and possible threats. (10 Marks)
- b. Discuss the various approaches for digital signatures. (10 Marks)

OR

- 4 a. Compare conventional metering and smart metering. (10 Marks)
- b. What is demand side integration? Explain price-based DSI implementations. (10 Marks)

### Module-3

- 5 a. With a neat diagram, explain modern substation. (10 Marks)
- b. Explain fully automated distribution network with neat diagram. (10 Marks)

OR

- 6 a. Explain outage management system with block diagram. (10 Marks)
- b. Explain the integration of Micro-grids to DMS through MGCC. (10 Marks)

### Module-4

- 7 a. Explain phasor measurement units with necessary diagrams. (10 Marks)
- b. With a neat circuit diagram and waveforms explain multi-modular converter. (10 Marks)

OR

- 8 a. Explain D-STATCOIN in smart grid. (10 Marks)
- b. Explain static fault current limiter. (10 Marks)

### Module-5

- 9 a. Explain current source converter with neat circuit diagram. (10 Marks)
- b. Explain multi-terminal HVDC with four terminals. (10 Marks)

OR

- 10 a. Discuss various types of energy storage technologies. (10 Marks)
- b. Discuss briefly the benefits of energy storage in smart grid. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.