



CBCS SCHEME

18EE744

Seventh Semester B.E. Degree Examination, June/July 2023

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. Compare the attributes elements of the smart grid with traditional grid. (08 Marks)
b. Define electrinet, draw its infrastructure and provide a brief note on low carbon central generation. (12 Marks)

OR

- 2 a. What are the four potential system configurations associated with the path to a perfect power system and highlight its goals? (08 Marks)
b. What are the elements of distributed generation system and explain the benefits associated with its adaptation. (12 Marks)

Module-2

- 3 a. What are the benefits and drives associated with increasing equipment operating DC and how it enable micro grid integration. (10 Marks)
b. Discuss the equipment compatibility of induction motor and electric base board and water heating with DC supply. (10 Marks)

OR

- 4 a. Explain the following functionalities : i) Visualizing the power system in real time
ii) Self – healing grid. (10 Marks)
b. Explain how energy port enables enhanced connectivity to the consumer. (10 Marks)

Module-3

- 5 a. Discuss the key characteristics of the advanced whole building control and communication architecture. (10 Marks)
b. Explain the principle of demand side management and its critical aspects. (10 Marks)

OR

- 6 a. Specify the role of technology in enabling demand response. (10 Marks)
b. Discuss the key characteristics of the smart devices. (10 Marks)

Module-4

- 7 a. Define electro-technologies and discuss the benefits it brings in supply side and demand side. (12Marks)
b. Discuss the operation of the heat pump water heater and explain its role in the reduction of CO₂ emission. (08 Marks)

OR

- 8 a. Discuss the operation to be carried out in motors and drive trains for better efficiency. (12 Marks)
b. What are the merits that can be achieved by adopting electric process heat systems?(08 Marks)

Module-5

- 9 a. Briefly explain : i) Valley filling ii) Load shifting. (10 Marks)
b. Discuss the four steps of activities characterizing demand side management alternatives. (10 Marks)

OR

- 10 a. Discuss the concerns in evaluating demand side alternatives and the data requirements associated with it. (10 Marks)
b. With a neat diagram briefly explain the factors influencing system load shape. (10 Marks)

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.