Reg. No. : | E | N | G | G | T | R | E | E | . | C | O | M |

Question Paper Code : 50975

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2024.

Fifth/Sixth Semester

Electrical and Electronics Engineering

EE 3007 — SMART GRID

(Regulations 2021)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate between Conventional and Smart Grid.

2. State the basics of Microgrid.

3. Mention the need of AMI in smart grid.

4. List the benefits of AMI.

5. Mention the smart energy resources.

6. Tabulate the characteristics of smart substations.

7. How Volt/VAr control is being done in the distribution side of Smart Grid?

8. Write the merit of high - efficiency distribution transformer.

9. What is House Area Network?

10. List few Computing technologies for Smart Grid applications.

PART B — (5 × 13 = 65 marks)

11. (a) Explain the structures, functions, opportunities of Smart Grid.

Or

    (b) Discuss the National and International Initiative in Smart Grid.

12. (a) Summarize the real time management and control using Phasor Measurement Unit.

Or

(b) Explain the AMI protocols, standard and initiatives.

13. (a) Discuss the Substation Automation and Feeder Automation with a suitable example.

Or

(b) Relate the role of EMS in monitoring, protection and control in transmission systems.

14. (a) Explain the fault detection, isolation and service restoration in the distribution system of Smart Grid.

Or

(b) Extend the implementation of Electric Vehicles in smart grid.

15. (a) Discuss the WAN and BPL technologies interfacing web service to Cloud.

Or

(b) Explain the need of Cyber Security for Smart Grid. What are the recent technologies to achieve it?

PART C — (1 × 15 = 15 marks)

16. (a) Construct the technologies of big data and IoT in smart grid.

Or

(b) Simulate IoT based digital communication system for smart grid applications.

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