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Question Paper Code : 81247

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2025.

Fifth/Sixth/Seventh/Eighth 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. State the need of smart grid.
2. What are the specifications of Micro grid?
3. Categorize the AMI needs in the smart grid.
4. How AMI protocol is used?
5. Define Feeder Automation.
6. Show the Technology Drivers for smart grid technologies.
7. What is the impact of electric vehicle in smart grid.
8. How service isolation and restoration is performed.
9. What is the role of big data in smart grid?
10. List some IP based Protocols.

PART B — (5 × 13 = 65 marks)

11. (a) Describe the opportunities, challenges and benefits of Smart Grid.

Or

- (b) Elaborate the National and International Initiatives in Smart Grid.

12. (a) Examine the Advanced Metering infrastructure in smart grid.

Or

(b) Describe the Real time management and control.

13. (a) Construct the outline of smart substations in smart grid context.

Or

(b) Explain the EMS, Wide area Monitoring in transmission systems.

14. (a) Describe the DMS, Volt/V Ar control.

Or

(b) Discuss the applications of High-Efficiency Distribution Transformers and Phase Shifting Transformers in smart grid.

15. (a) Elaborate the use of Wide Area Network (WAN), Broadband over Power line (BPL) along with its protocol.

Or

(b) Explain the Cyber Security for Smart Grid.

PART C — (1 × 15 = 15 marks)

16. (a) Describe the computing technologies for Smart Grid applications.

Or

(b) Develop a system using Phasor Measurement Unit (PMU) in smart grid.