Reg. No:

**Meenakshi Sundararajan Engineering College**
(Managed by I.I.E.T Society)
Approved by AICTE and Affiliated to Anna University
Accredited by NAAC with 'A' Grade
Accredited by NBA for programs applied
**363, Arcot Road, Kodambakkam, Chennai – 24**

**Department of Electrical and Electronics Engineering**

**Regulation- 2021**

**Date : 15.11.23** **Model Examination**
**Sem/Year: V/III** **MARKS:100**
**EE3007- Smart Grid** **TIME: 3 Hours**

## Part – A 10x2=20

| Q.No. | Questions | CO | BTL |
|---|---|---|---|
| 1. | What are the components of the Smart Grid? | CO1 | BTL1 |
| 2. | Write down any four of the on-going Smart grid Projects? | CO1 | BTL1 |
| 3. | List the any four threats of AMI. | CO2 | BTL2 |
| 4. | What are the disadvantages of AMI | CO2 | BTL1 |
| 5. | List the general functions of a substation. | CO3 | BTL1 |
| 6. | Discuss how high penetration of intermittent resources affects the network? | CO3 | BTL2 |
| 7. | Specify the need for DMS in smart grid. | CO4 | BTL2 |
| 8. | Give the Volt/ VAr control equipment inside the substation. | CO4 | BTL1 |
| 9. | Define HAN? | CO5 | BTL2 |
| 10. | Define Super-PDC. | CO5 | BTL1 |

## Part- B 5x13=65

| Q.No. | Questions | CO | BTL |
|---|---|---|---|
| 11.a | Explain the Functions of smart grid. | CO1 | BTL3 |
| | **(OR)** | | |
| 11.b | Discuss the challenges and benefits of microgrid. | CO1 | BTL3 |
| 12.a | With neat diagram explain the typical AMI system. | CO2 | BTL4 |
| | **(OR)** | | |
| 12.b | With neat diagram explain the Architecture of Wide Area Measurement Systems. | CO2 | BTL4 |
| 13.a | Summarize the role of PMU, Time Synchronization and Phasor Data Concentrator on Transmission system? | CO3 | BTL3 |
| | **(OR)** | | |
| 13.b | Explain the transformation of normal grid to smart grid. | CO3 | BTL3 |
| 14.a | Explain the equipment used in Volt/Var control in smart grid. | CO4 | BTL5 |
| | **(OR)** | | |
| 14.b | Elaborate the concept of FDIR in smart grid | CO4 | BTL5 |
| 15.a | (i) Describe the main component of HAN.<br>(ii) Discuss the benefits of HAN in smart grid. | CO5 | BTL4 |
| | **(OR)** | | |
| 15.b | Explain about need of Cyber security in the Smart Grid | CO5 | BTL4 |

## Part – C 1x15=15

| Q.No. | Questions | CO | BTL |
|---|---|---|---|
| 16.a | Describe the National and International Initiatives in Smart Grid systems. | CO1 | BTL6 |
| | **(OR)** | | |
| 16.b | Compare the Principal Characteristic of Smart grid, Today's grid | CO3 | BTL6 |