

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER- VII EXAMINATION-SUMMER 2023****Subject Code: 3170922****Date: 21/06/2023****Subject Name: Smart Grids****Time: 10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Explain the advantages of Distributed Generation. List the types of Distributed Generations in practice.	03
	(b) Give the comparison between the Smart Grids and Existing Grids.	04
	(c) Draw and discuss in brief the architecture of Smart Grids.	07
Q.2	(a) Define: Smart Grid. List the Smart Grid Domains.	03
	(b) Write short Notes on: Challenges in India for Smart Grid Implementation.	04
	(c) Discuss the various Smart Grids Standards in brief.	07
	OR	
	(c) Explain the operational features of fault detection and self-healing systems.	07
Q.3	(a) List the Levels of Phasor Data Concentrator.	03
	(b) Define Micro grid. What are the various applications of Micro grids?	04
	(c) List the Challenges in Modeling a Communication Infrastructure of Smart Grid.	07
	OR	
Q.3	(a) Explain in brief: Various Methods of Islanding Detection	03
	(b) Discuss the various issues encountered while interconnecting Micro grid with the main power grid.	04
	(c) List the features of Smart Grid Communication Networks in brief.	07
Q.4	(a) List the Functions of PMU.	03
	(b) Discuss the constraints of Demand Side management.	04
	(c) Draw and explain structure of Phasor Measurement Unit (PMU).	07
	OR	
Q.4	(a) List the Applications of PMU.	03
	(b) What is AMI? Describe functional block diagram of smart metering.	04
	(c) Draw and Explain the Communications Infrastructure of Smart Grid.	07
Q.5	(a) Describe the role of load dispatch centers in smart grid operations.	03

- (b) List the benefits of Advanced Metering Infrastructure (AMI). **04**
- (c) Write Short Notes on: Phasor Data Concentrator(PDC) **07**
- OR**
- Q.5** (a) List the Types of Demand Responses. **03**
- (b) Draw the Block Diagram of Advanced Metering Infrastructure (AMI). **04**
- (c) Define: Demand Side Management. Give the classification of DSM. Also List the constraints of DSM. **07**
