GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2024

Subject Code:3170922 Date:19-11-2024

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.

Q.1 (a) Overall view on Smart Grid Vs Conventional Grid. (b) Draw the functional Block Diagram of Smart metering. (c) Discuss: The Indian scenario and updates for implementing the smart Grid setup. Q.2 (a) List the Challenges to implement of Smart Grid setup. (b) Describe the advantage and disadvantage of distributed generations (c) Draw and Explain in Brief: Generalized smart grid architecture. OR (c) Give the Definition of Smart grid. What are the necessities of smart grid in existing electric power system network? Q.3 (a) Write short technical note about Unit commitment. (b) Discuss the electric vehicle to grid system in detail. (c) Explain the role of ZigBee in smart grid? OR Q.3 (a) Explain Energy management system (EMS) in detail. (b) List the technical features of Bluetooth technology. (c) Compare the micro grid and smart grid. Q.4 (a) List the advantage and disadvantage of distributed generations. (d) Explain SCADA system and their limitations (e) Explain the concept of wide area monitoring system (WAMS) OR Q.4 (a) Discuss in brief: Automatic meter reading (b) What is islanding? Explain the need and benefits of islanding. (c) List the barriers to utilize the distributed generation? How to overcome it? Q.5 (a) Explain the operational feature of phasor management Unit (PMU). (b) The role of load dispatch centers in smart grid operations: Discuss (d) OR OR OR OR Q.5 (a) Explain the operational feature of phasor management Unit (PMU). (d) What are the challenges of demand side management of smart grid				MARKS
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Q.5 (a) List the basic components of PMU (b) Classify time based tariff.	Q.S	` ′		
(c) Explain the Role of cyber security for smart grid operations				
