

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2021****Subject Code:3172419****Date:29/12/2021****Subject Name:Smart Grid and Power Electronics****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) Compare today's grid with smart grid.	03
	(b) Enlist smart grid control layer.	04
	(c) Draw and explain the architecture of Smart Grid.	07
Q.2	(a) Enlist distributed generation resources.	03
	(b) List out the application of smart grid.	04
	(c) Discuss the role of power electronics in smart grid.	07
OR		
	(c) Draw the block diagram of Plug-in-Hybrid Vehicles (PHEV) and explain each block in detail.	07
Q.3	(a) Explain phase measuring unit.	03
	(b) Discuss islanding and anti-islanding in power system.	04
	(c) Explain smart metering and advantages of it.	07
OR		
Q.3	(a) State disadvantage of smart grid.	03
	(b) Discuss the demand side management of Smart Grid	04
	(c) Explain modeling of DC smart grid with analysis.	07
Q.4	(a) State the components of AC smart grid and DC smart grid.	03
	(b) Give comparison between AC smart grid and DC smart grid.	04
	(c) Write a short note on: storage devices used in smart grid.	07
OR		
Q.4	(a) Define relay co-ordination and discuss need of relay co-ordination.	03
	(b) Explain important of smart relays in smart grid.	04
	(c) Explain the operation and control of AC Smart Grid.	07
Q.5	(a) Draw the architecture of the DC microgrid.	03
	(b) Write a short note on: Energy Management.	04
	(c) Discuss the technologies used in smart grid.	07
OR		
Q.5	(a) Explain importance of fault detection and isolation in power system.	03
	(b) Discuss the operation and control of hybrid Smart Grid.	04
	(c) Explain the operation and control of DC Smart Grid	07
