

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2024****Subject Code: 3152410****Date: 21-05-2024****Subject Name: Power Electronics in Consumer Products****Time: 02:30 PM TO 05:00 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) Discuss the challenge of home automation.	03
	(b) Write advantages and disadvantages of power electronics products.	04
	(c) Discuss role and importance of power electronics converters in day to day life.	07
Q.2	(a) Discuss the advantages of LED based lights.	03
	(b) Explain the block diagram of CFL.	04
	(c) Explain solar based lights.	07
	OR	
	(c) Explain rechargeable lights.	07
Q.3	(a) Discuss the block diagram of automatic gate/door.	03
	(b) Explain the working of small roof top solar power plant.	04
	(c) Discuss the working of solar based agricultural pump system.	07
	OR	
Q.3	(a) Discuss the block diagram of battery charger.	03
	(b) Explain the working of small roof top wind power plant.	04
	(c) Explain the working of electric vehicle.	07
Q.4	(a) Explain the concept of wireless charging.	03
	(b) Discuss the working of mobile charger.	04
	(c) Explain power electronic converter used in induction water heater.	07
	OR	
Q.4	(a) Explain the operation of induction cooktop.	03
	(b) Discuss the advantages of IOT based devices.	04
	(c) Explain the regulated power supply used in personal computer.	07
Q.5	(a) Discuss the power electronics converter used in vacuum cleaner.	03
	(b) Explain the block diagram of Drone.	04
	(c) Explain the working of converter used for BLDC motor.	07
	OR	
Q.5	(a) Explain the working of automatic curtains.	03
	(b) Discuss the power electronics converter used in air conditioner.	04
	(c) Explain the working of converter used in elevator.	07
