

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:3152410

Date:02-12-2024

Subject Name:Power Electronics in Consumer Products

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) State PE converters used in UPS and explain their use in brief.	03
	(b) State various consumer product applications in residential, and commercial sector.	04
	(c) Discuss role of power electronics in day-to-day life.	07
Q.2	(a) Explain use of PE converters in drones.	03
	(b) Draw block diagram and explain working of Solar based agricultural pump.	04
	(c) Discuss the working of PE converter in rechargeable and portable lights.	07
	OR	
	(c) Discuss the role of Power Electronics in home automation.	07
Q.3	(a) Compare Power Electronics system with linear electronics.	03
	(b) Discuss the working of automatic gates w.r.t. Power Electronics.	04
	(c) Discuss the working of BLDC fan and explain PE converters used in it.	07
	OR	
Q.3	(a) State advantages of using LED lighting over conventional lighting systems.	03
	(b) Explain working of PE Converters used in IOT based controllable/dimmable lights.	04
	(c) Discuss the role of Power Electronics in washing machine, and state its advantages over conventional system.	07
Q.4	(a) Discuss the role of power electronics in Advertising Display Unit.	03
	(b) Discuss the role of PE converters in LED and LCD TV.	04
	(c) Discuss the working of Induction cook tops with necessary diagrams.	07
	OR	
Q.4	(a) Discuss in brief the need of regulated power supplies.	03
	(b) Discuss the role of PE converters in Personal Computers.	04
	(c) Explain PE converter-based battery charger with necessary diagrams.	07
Q.5	(a) Discuss PE application in printers.	03
	(b) Discuss the role of PE converters in Tablets and Cellular Phones.	04
	(c) Draw block diagram of PE based Florescent Tube Light Choke, mention the type of PE converter used in it and its explain working.	07
	OR	
Q.5	(a) State the difference between ELCB and MCB.	03
	(b) Explain the concept and working of wireless charging.	04
	(c) Compare Conventional Air Conditioner (AC) with inverter AC.	07
