

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2023

Subject Code: 3152410

Date: 11-12-2023

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) Briefly discuss importance of power electronics converters in daily life.	03
	(b) Explain advantages and dis-advantages of power electronics system.	04
	(c) Explain IOT based controllable lights with neat diagram.	07
Q.2	(a) Draw and explain block diagram of power electronics system.	03
	(b) Discuss power electronics converter used in Home automation system.	04
	(c) Draw and explain block diagram of power electronics converter used in Florescent Tube Light Chokes.	07
	OR	
	(c) Compare LED based tube lights with conventional tube-lights in tabular form.	07
Q.3	(a) Briefly discuss on CFL lamp.	03
	(b) Write a short note on: Automatic curtains.	04
	(c) Discuss the use and advantages of BLDC motors in Electric Vehicle.	07
	OR	
Q.3	(a) Discuss power electronic converter used in refrigerators.	03
	(b) Discuss solar based lights with necessary diagram.	04
	(c) Draw and explain block diagram of power electronics converter used in Elevators.	07
Q.4	(a) How power electronics converter used in LED TV? Discuss it in brief.	03
	(b) Discuss battery charger for Electric Vehicle.	04
	(c) Explain the power electronics converter used in small roof top solar power plant.	07
	OR	
Q.4	(a) Briefly discuss the concept of wireless charging.	03
	(b) Discuss used of power electronics converter in Internet Routers.	04
	(c) Draw and explain power electronic converter used in Induction water heater. Give its advantages over conventional water heater.	07
Q.5	(a) Differentiate between MCB and ELCB.	03
	(b) Describe the working principle of induction cook tops.	04
	(c) Draw and explain the block diagram of solar based agricultural pumps. State its advantages.	07

OR

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| Q.5 | (a) | Illustrate the role of power electronics in Advertising display unit. | 03 |
| | (b) | Discuss the working of static and relay based stabilizer. | 04 |
| | (c) | Draw and explain block diagram of power electronics converter used in Electric Vehicle. Compare Electric vehicle vs Internal Combustion Engine vehicle. | 07 |
