

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- VII (New) EXAMINATION – WINTER 2019

Subject Code: 2172410

Date: 30/11/2019

Subject Name: Power Electronics Design

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.

		MARKS
Q.1	(a) Describe the function of PUT with suitable example circuit	03
	(b) Enlist steps to design power electronics circuit.	04
	(c) Make suitable design of non-isolated driver circuit for IGBT. Support your answer with suitable diagrams.	07
Q.2	(a) Enlist & explain steps for transformer design at line frequency.	03
	(b) Discuss the effect of poor grounding for driver circuits.	04
	(c) Discuss the design aspects and component selection for Snubber Circuit.	07
	OR	
	(c) Describe the methods adopted for suppressing over voltages in thyristor.	07
Q.3	(a) Enlist the requirement of isolated driver circuit.	03
	(b) Write a technical note on di/dt and dv/dt protection.	04
	(c) Describe the steps involving in high frequency inductor design for boost converter.	07
	OR	
Q.3	(a) Enlist the importance of isolated driver circuit.	03
	(b) Write a technical note on Thermal protection	04
	(c) Discuss the method to design high frequency transformer for flyback converter.	07
Q.4	(a) Write a note on: opto-coupler.	03
	(b) Draw any one isolated driver circuit for TRIAC.	04
	(c) Discuss a method to measure analog quantity like voltage, current & frequency.	07
	OR	
Q.4	(a) Discuss working of pulse transformer in brief.	03
	(b) Write a brief note on floating ground concept.	04
	(c) Design non-isolated type driver circuit for Power BJT. Support your answer with suitable diagrams.	07
Q.5	(a) Explain the Natural Cooling & forced Cooling of Heat Sinks.	03
	(b) Enlist & explain types of PCBs.	04
	(c) Write a short note on design Considerations for Voltage Isolation and Current Capacity for PCB design.	07
	OR	
Q.5	(a) Write a detailed note on Thermal Resistance & its Consideration	03
	(b) Explain the Noise Reduction Through PCB Layout.	04
	(c) Write a brief note on PCB designing.	07
