

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII(NEW) EXAMINATION – SUMMER 2019

Subject Code:2172410

Date:18/05/2019

Subject Name:Power Electronics Design

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.

		MARKS
Q.1	(a) Explain design of Inductor for Power Converter.	03
	(b) Write a technical note on Thermal protection.	04
	(c) Write a technical note on di/dt and dv/dt protection.	07
Q.2	(a) Explain the use of Snubber Circuit in detail.	03
	(b) Write a brief note on PCB designing.	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) Explain driver circuit for IGBT.	03
	(b) Explain any one Isolated driver circuit for Power Electronics device with design consideration.	04
	(c) Explain Floating ground considerations for Isolated driver circuits.	07
	OR	
Q.3	(a) Why Isolation is required in driver circuit of Power device?	03
	(b) Explain the driver circuit for Full Wave Controlled Rectifier.	04
	(c) Write a short note on design Considerations for Voltage Isolation and Current Capacity for PCB design.	07
Q.4	(a) Write a short note on IGBT ratings.	03
	(b) Explain importance of Pulse Transformer.	04
	(c) Discuss the steps for design of low frequency Transformer with appropriate example.	07
	OR	
Q.4	(a) Describe the function of PUT with suitable example circuit.	03
	(b) Explain importance of Opto-Isolator.	04
	(c) Write a detailed note on Thermal Resistance & its Consideration.	07
Q.5	(a) Explain the Natural Cooling & forced Cooling of Heat Sinks.	03
	(b) Explain the difference between Single Layer & Multi Layered PCB.	04
	(c) Discuss thermal modeling of power switching devices with mathematical equivalent circuit and neat diagram.	07
	OR	
Q.5	(a) Explain the Transformer Design for Bridge.	03
	(b) Explain the Noise Reduction Through PCB Layout.	04
	(c) Discuss the design of Push-Pull converter circuit.	07
