

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– VII (New) EXAMINATION – WINTER 2019****Subject Code: 2172408****Date: 28/11/2019****Subject Name: Advanced Power Electronics Devices & Interface Circuits****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) State applications of WBG materials.	03
	(b) Why do semiconductors have a band gap?	04
	(c) Compare WBG (Sic or GaN) with Silicon based power electronics.	07
Q.2	(a) State different methods of galvanic isolation.	03
	(b) State functions of driver circuits.	04
	(c) Explain the any Non-Isolated Driver ICs used for Half Bridge Rectifier.	07
	OR	
	(c) Explain the Hall Effect Current Sensors & Linear Opto coupler.	07
Q.3	(a) State various principles used in transducers used for current measurement in industry.	03
	(b) Enlist isolated and non-isolated driver ICs.	04
	(c) Explain the Interfacing of Signals Using Galvanic Isolation.	07
	OR	
Q.3	(a) Discuss Gate Drive Requirements Of High-Side Devices.	03
	(b) Write short note on Current Transformer.	04
	(c) Explain why isolation of field signal is required? Explain any one method of isolating field signals with neat diagram.	07
Q.4	(a) Draw Analog to Digital converter circuit.	03
	(b) State various logic families.	04
	(c) Explain how a TTL IC can be interfaced with CMOS IC. Draw interconnection diagrams also.	07
	OR	
Q.4	(a) Draw any one scheme for interfacing slow field signal with microprocessor.	03
	(b) What is logic analyzer? State its applications.	04
	(c) Write technical note on current probe for power electronics.	07
Q.5	(a) What is meaning of VOH and VOL voltage levels of logic ICs.	03
	(b) Write short note on Grounding for Power Circuits.	04
	(c) Explain single switch driver IC without SC protection.	07
	OR	
Q.5	(a) Explain requirement of Isolation Amplifier.	03
	(b) Compare CRO with DSO.	04
	(c) Write technical note on differential voltage probe.	07
