Seat No.:		.: Enrolment No		
		GUJARAT TECHNOLOGICAL UNIVERSITY		
		BE - SEMESTER-VII (NEW) - EXAMINATION – SUMMER 2017		
Subject Code: 2170906 Date: 2		t Code: 2170906 Date: 29/04/20	9/04/2017	
Sı	ubjec	t Name: Advanced Power Electronics		
	•	02.30 PM to 05.00 PM Total Marks:	70	
	struct			
	1	. Attempt all questions.		
	2	2. Make suitable assumptions wherever necessary.		
		Figures to the right indicate full marks.		
Q.1	(a)	Explain the working principle of cuk converter and derive the expression for V_o/V_d	07	
	(b)	Derive the expression for duty ratio in discontinuous mode of operation with constant V_{o} for Buck converter with circuit diagram and waveform.	07	
Q.2	(a) (b)	Discuss flyback converter with circuit diagram and waveform. Draw circuit diagram and waveform, explain the working of Zero voltage	07 07	
		Switching Converter. OR		
	(b)	Explain the principle of L-Type ZCS resonant inverter with circuit diagram and	07	
	(D)	waveform.	U/	
Q.3	(a)	Draw the circuit diagram and waveform of five levels cascaded H – Bridge Multilevel Inverter and explain its working.	07	
	(b)	Compare the topologies of multilevel inverter.	07	
	` /	OR		
Q.3	(a)	Give comparison of ZCS & ZVS resonant converter.	07	
	(b)	Explain the working of one leg five levels diode clamped multilevel inverter	07	

with circuit diagram and waveform. Also mention its salient features.

Draw the circuit diagram and waveform of 12 pulse converter and explain its

OR
(a) Draw the circuit diagram and waveform of three phase six pulse converter and

Explain the advantages and limitations of Static Synchronous Series

Compare HVDC and HVAC transmission systems.

(b) Discuss the equipments required for HVDC systems.

(b) Discuss Static Synchronous Compensator (STATCOM).

Q.4

Q.4

Q.5

Q.5

(a)

(b)

(a)

working principle.

compensator (SSSC).

explain its working principle.

(a) Explain the working principle of FC-TCR.

Explain the working principle of TSC-TCR.

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