

SE Sem IV (ELEC) C-Scheme KT Winter 2025

Duration: 3hrs

[Max Marks: 80]

- Note: 1) Question No. 1 is compulsory
 2) Attempt any three questions out of remaining five
 3) All Questions carry equal marks
 4) Assume suitable data if required and state it clearly

	Marks
Q1 Solve any four from the following	
a Explain working of SCR with two-transistor analogy.	5
b Explain different performance parameters of inverter.	5
c Explain in brief applications of MOSFET, IGBT and SCR	5
d. Compare VSI and CSI.	5
e Explain any one forced commutation circuit	5
Q2	
a Explain working and characteristics of power MOSFET. Also state gate driving requirements.	10
b Explain working of a buck-boost converter. Draw waveforms and derive equation to calculate output voltage	10
Q3	
a Explain single-phase full bridge inverter driving R-L load.	10
b Explain need and working of Dual converter in circulating current mode.	10
Q4	
a Explain three phase inverter in 180° mode of conduction.	10
b Draw and explain dynamic characteristics of SCR.	10
Q5	
a Draw waveforms and explain three phase full converter with R load also write the output voltage equation.	10
b Explain Pulse Triggering of SCR.	10
Q6 Write short notes on any two.	20
a Write a short note on 'Protection of SCR'.	
b Compare SiC and GaN devices	
c Explain Space Vector Modulation	
