BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP2023)

CLASS: BTECH   SEMESTER : VI
BRANCH: EEE   SESSION : SP2023

SUBJECT: EE353 POWER ELECTRONICS

TIME: 02 Hours   FULL MARKS: 25

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. **Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates**

			CO	BL
Q.1(a)	Discuss the ideal and practical *i-v* characteristics of a power diode.	[2]	1	2
Q.1(b)	Explain with the help of a neat diagram the reverse recovery characteristics of power diodes.	[3]	1	2
Q.2(a)	State the necessary condition to turn-off a thyristor?	[2]	1	1
Q.2(b)	Using two transistor model of a thyristor, derive the expression of anode current.	[3]	1	2
Q.3(a)	State the differences between BJT and Power MOSFET.	[2]	1	1
Q.3(b)	Draw an explain the transfer and output characteristics of n-channel Power MOSFET.	[3]	1	1
Q.4(a)	State the turn-on conditions for SCR triggering.	[2]	1	1
Q.4(b)	Define latching and holding currents as applicable to an SCR. Show these currents on its static i-v characteristics.	[3]	1	1
Q.5(a)	Explain the switching characteristics of Power MOSFET with proper waveforms.	[2]	1	2
Q.5(b)	Explain Class F line commutation technique for a thyristor.	[3]	1	1

::::::23/02/2023::::::M