



K. K. Wagh Institute of Engineering Education & Research, Nashik
(An Autonomous Institute From A.Y. 2022-23)

InSem Examination-I Winter2025	
Exam Seat No.:	
Academic Year:2025-2026	Semester:I
Class:PG-I	Program:M.Tech
Branch Code:ELE	Pattern:2024
Name of Course:Power Electronics Converters	Course Code:2406503
Max. Marks:30	Duration:1.15 Hrs.

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains 1 page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

Marks CO

Question No. 1

- 1 a) Compare the merits and demerits of IGBT and MOSFET. (2M) (7) CO 1, CO 2
Draw the circuit diagram and waveform of a Boost Converter. (5M)

Question No. 2

- 2 a) Explain the switching characteristics of a MOSFET (8) CO 2

OR

- 2 b) Draw and explain the steady-state and switching characteristics of an SCR. (8) CO 2

Question No. 3

- 3 a) Define Duty Cycle (2M) (7) CO 2
Explain the working of a Buck Converter with a neat waveform and derive the expression for the output voltage. (5M)

Question No. 4

- 4 a) Draw the power circuit diagram of a Cuk Converter and explain its operation with equivalent circuits for different modes and corresponding waveforms. (8) CO 2, CO 3

OR

- 4 b) Draw the power circuit diagram of a Flyback Converter and explain its operation with equivalent circuits for different modes and corresponding waveforms. (8) CO 2, CO 3

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