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Course Code : ACE 216	Exam : 1 <sup>st</sup> Term Exam
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Answer all the following questions

Question No 1 :

[20 Marks]

A single-phase full bridge diode rectifier is supplied from 220 V, 50 Hz source shown in figure 1. The load consists of  $R=20 \Omega$  and a large inductance to make the load current constant. Determine:

- Average values of output voltage, output current and diode current.
- Rms values of output current, input currents and diode current.
- The maximum peak inverse voltage PIV of each diode.
- Sketch the o/p voltage, o/p current and diode current waveforms.
- Plot Reverse recovery characteristic of power diode. What is mean by softness factor?
- The reverse recovery time of a diode is  $t_{rr} = 6 \mu s$ , and the rate of fall of the diode current is  $di/dt = 80 A/\mu s$ . If the softness factor is  $SF = 1$ , determine the storage charge  $Q_{RR}$  and the peak reverse current  $I_{RM}$ .
- Plot power loss for real and ideal semiconductor switches. Draw block diagram of a major components of a power electronic systems.

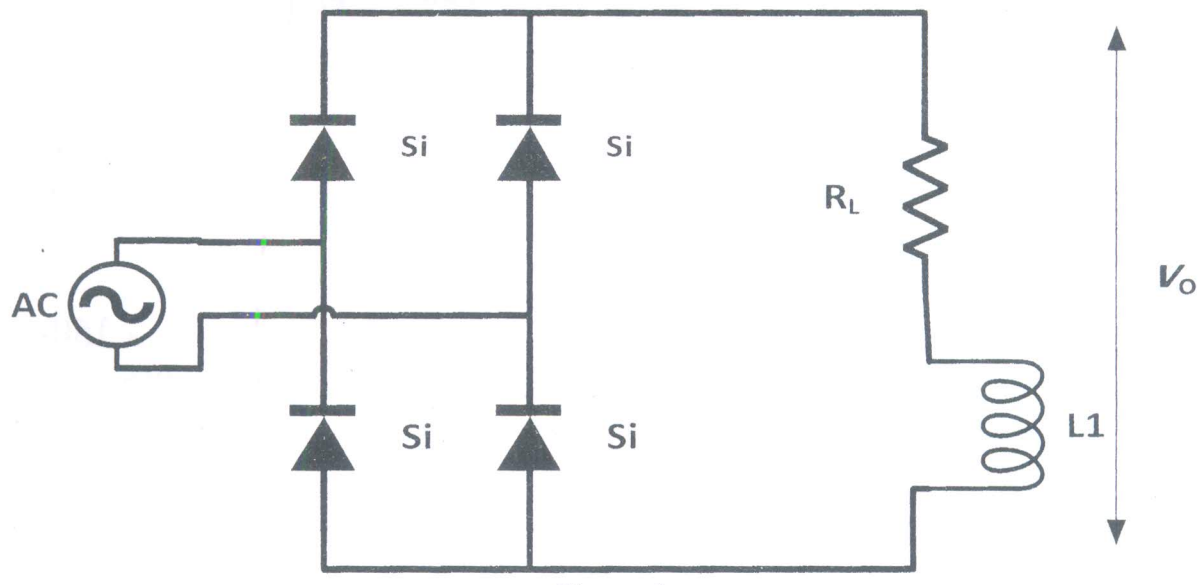


Figure 1