EE23BTECH11047 - Deepakreddy P

32   A single-phase full-bridge diode rectifier feeds a resistive load of 50Ω from a 200 V, 50 Hz single phase AC supply. If the diodes are ideal, then the active power, in watts, drawn by the load is (round off to nearest integer).
(GATE EE 32)
Solution:

Table I
INPUT PARAMETERS

Symbol	Description	value
R	Load Resistance	50Ω
V_{rms}	RMS Voltage	200V
f	Frequency	50Hz
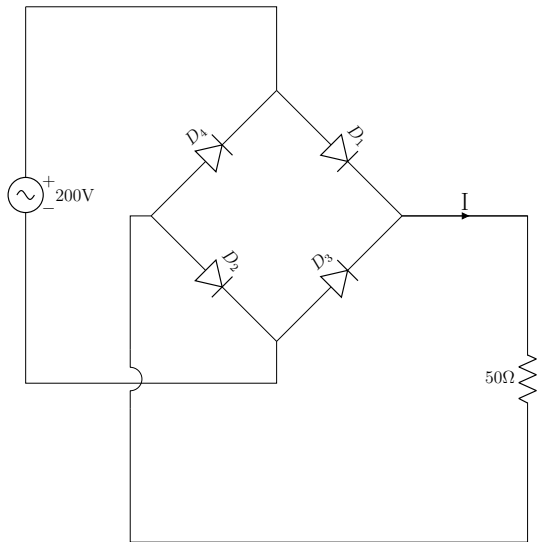
$$V_{rms} = 200 \tag{1}$$

$$P = \frac{(V_{rms})^2}{R} \tag{2}$$

$$P = \frac{(200)^2}{50}W \tag{3}$$

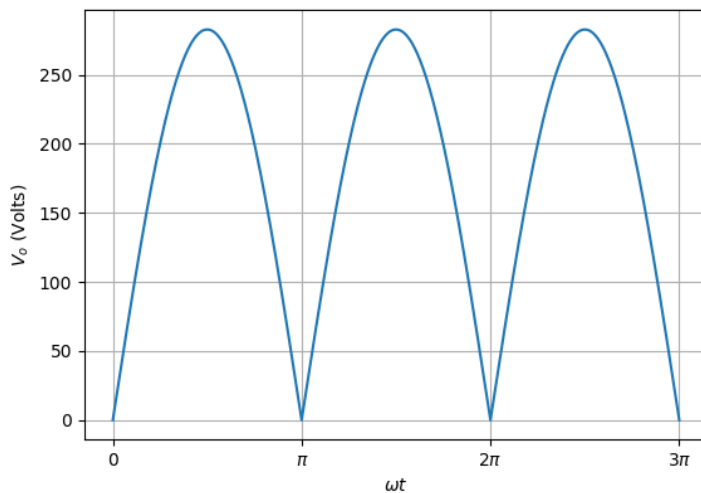$$P = 800W \tag{4}$$

Figure 1. Circuit-1

Figure 2. Output voltage waveform of single-phase full bridge rectifier