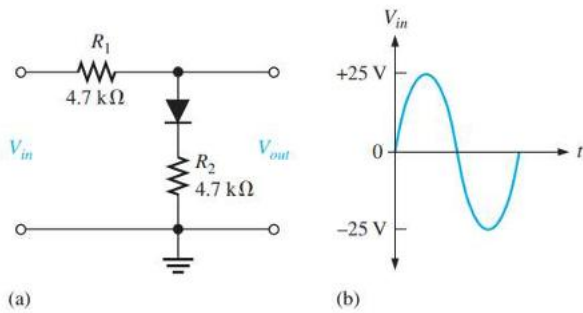


Errata to the Solutions of Mock Test

Section C Diode Applications

Question 4.

4. Determine the peak-to-peak output voltage and waveform for the circuit in (a) for each input voltage in (b), (c), and (d). [15 marks]

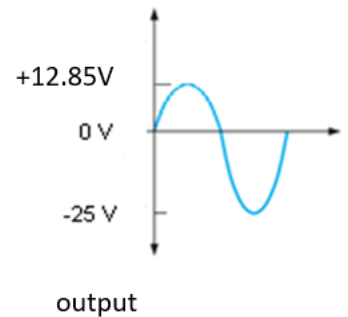


Solution

For wave form in (b)

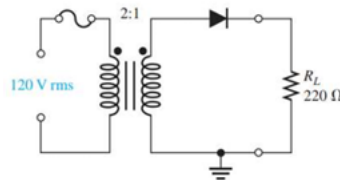
$$\text{During } V+: V_{out} = (25 - 0.7/2) + 0.7 = 12.85 \text{ V}$$

$$\text{During } V-: V_{out} = -25 \text{ V}$$



Question 7.

7. Determine the peak and average power delivered to R_L in the figure given below. [10 marks]



Solution

RMS secondary voltage: (2.5)

$$V_s = V_p (N_s/N_p) = 120 (1/2) = 60 \text{ V (rms)}$$

Average secondary voltage: (2.5)

$$V_s (\text{ave}) (\text{half wave}) = V_s (\text{peak})/\pi = V_s (\text{rms})/(0.707 \times \pi) \\ = 60/(0.707 \times \pi) = 27.02 \text{ V}$$

Peak power: (2.5)

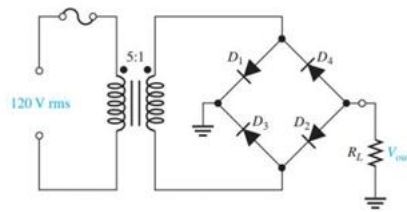
$$P (\text{peak}) = V (\text{peak})^2/R = (60/0.707)^2/220 = 32.7 \text{ W}$$

Average power: (2.5)

$$P (\text{ave}) = V (\text{ave})^2/R = (27.2)^2/220 = 3.36 \text{ A}$$

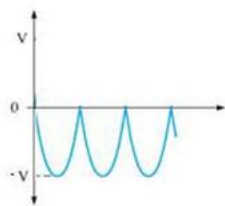
Question 8.

8. Draw the output voltage waveform for the bridge rectifier given in the figure below. Notice that all the diodes are reversed from circuits shown earlier in the chapter. [5 marks]



Solution

The waveform across the load resistor (Vout) is as shown below: (2.5)



In this case, in the output we will see negative voltage of the full-wave bridge rectifier. (2.5)

$$V_{out}(\text{peak}) = (V_{in}(\text{rms})/0.707) \times (1/5)$$

$$= (120/0.7070) \times (1/5) - (0.7 \times 2) = -32.55 \text{ V}$$