Chapter 2

1. See Figure P2-1.

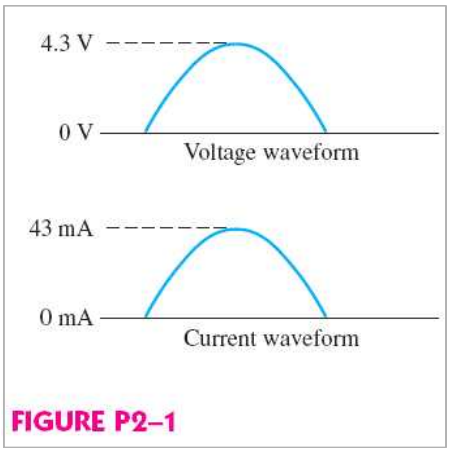

FIGURE P2–1

2. $primary\,side:\ V_{pk} = 115\sqrt{2}\ V = 162.6\,V$

$secondary\,side:\ V_{pk} = \dfrac{162.6\,V}{2} = 81.3\,V$

Peak voltage delivered to the load

$= V_{L(pk)} = 81.3\,V - 0.7\,V = 80.6\,V$

Peak power delivered to the load

$= \dfrac{V_L^2}{R_L} = \dfrac{(80.6\,V)^2}{220\Omega} 29.5\,W$

3. (a) **Full-wave rectifier (전파 정류기)**

$(b)\ V_{p(\sec)} = \left(\dfrac{N_{\sec}}{N_{pri}}\right) V_{p(\in)} = (0.25)(1.414)(80\,V) = 28.3\,V$

$(c)\ V_{\frac{1}{2}sec} = \dfrac{V_{p(\sec)}}{2} = \dfrac{28.3\,V}{2} = 14.2\,V$

$(reference\,is\,center\,tap)$

(d) See Figure P2-3.

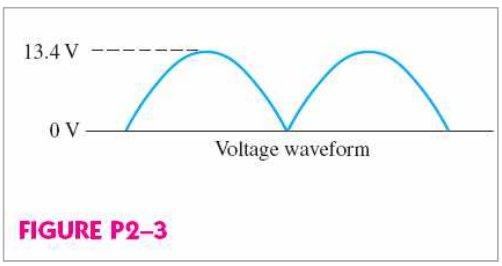

FIGURE P2–3

$(e)\ I_{p(diode)} = I_{p(R_L)} = \dfrac{14.2\,V - 0.7\,V}{1k\Omega} = 13.5mA$

$(f)\ PIV = V_{p(\sec)} = 28.3\,V$

4. **그림** P2-4에 도시 된 바와 같이, 다이오드 D1과 D2 역방향으로 설계

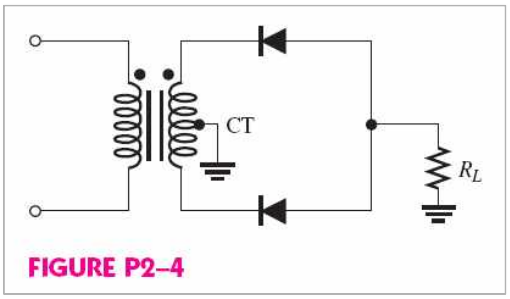

FIGURE P2–4

5. $V_p = 50\,V/0.637 = 78.5\,V,\ PIV = 78.5\,V$(평균값으로)

6. Peak voltage (피크 전압 값)

7. 부하정격 :

$= \left(\dfrac{V_{out} - V_{FL}}{V_{FL}}\right)100\% = \left(\dfrac{15.5\,V - 14.9\,V}{14.9\,V}\right)100\% = 4\%$

8.

$V_{out} = V_{NOLoad} - 0.5\%(V_{No\,Load}) = 12\,V - 0.005(12\,V) = 11.94\,V$

9. $V_{\in(MIN)} = (2.0mA)(560\Omega) + 5.0\,V = 6.12\,V$
$V_{\in(MAX)} = (30mA)(560\Omega) + 5.0\,V = 21.8\,V$

10. 부하정격

$= \left(\dfrac{V_{NL} - V_{FL}}{V_{FL}}\right)100\% = \left(\dfrac{8.0\,V - 7.8\,V}{7.8\,V}\right)100\% = 2.6\%$

11. 교재 Page511 참조

12.(a) 작동 제대로 (b) 다이오드 개방
(c) 제대로 작동 (d) 다이오드 개방

13.

$V_{out} = 5.0\,V = 1.25\,V\left(\dfrac{R_1 + R_2}{R_1}\right) = 1.25\,V\left(\dfrac{240\Omega + R_2}{240\Omega}\right)$

$5.0\,V = 1.25\,V + \left(\dfrac{1.25\,V}{240\Omega}\right)R_2,\quad R_2 = 3.75\,V\left(\dfrac{240\Omega}{1.25\,V}\right) = 720\Omega$

14.

$V_{out} = 1.25\,V\left(\dfrac{R_1 + R_2}{R_1}\right) = 1.25\left(\dfrac{240\Omega + 1500\Omega}{240\Omega}\right) = 9.06\,V$

15. 교재 Page511 참조