Chapter 6, Solution 8.

(a) $i = C\frac{dv}{dt} = -100ACe^{-100t} - 600BCe^{-600t}$ (1)

$i(0) = 2 = -100AC - 600BC \longrightarrow 5 = -A - 6B$ (2)

$v(0^+) = v(0^-) \longrightarrow 50 = A + B$ (3)

Solving (2) and (3) leads to

A=61, B=-11

(b) Energy $= \frac{1}{2}Cv^2(0) = \frac{1}{2}x4x10^{-3}x2500 =$ 5 J

(c) From (1),

$$i = -100x61x4x10^{-3}e^{-100t} - 600x11x4x10^{-3}e^{-600t} = -24.4e^{-100t} + 26.4e^{-600t} \text{ A}$$