

一、填空题

1. 30Ω

2. $6V$

3. $0.5\text{mH}; \frac{1}{3}$

4. $u_1 = -\frac{1}{n}u_2, i_1 = ni_2$

5. 0.2s

6. $10\mu\text{F}; 0.1\sqrt{2}\cos(1000t - 90^\circ)\text{A}$

二、计算题

1. $P_{6V} = 14\text{W}, P_{2A} = -14\text{W}$

2. 16W

3. (1) 相量模型略

(2) $H(j\omega) = \frac{1}{1.01 - \omega^2 + j0.2\omega}$

(3) $u_2(t) = 3.3\sqrt{2}\cos(2t - 172.4^\circ)\text{V}$

4. (1) $20\text{V}, 12\Omega$

(2) $0.5\text{J}, 3.2\text{J}$

5. (1) 复频域模型略

(2) $u_c(t) = (16e^{-2t} - 4e^{-5t})\varepsilon(t)\text{V}$

$i_L(t) = 4(e^{-2t} - e^{-5t})\varepsilon(t)\text{A}$

6. (1) $A = \begin{bmatrix} 1 & 2\Omega \\ \frac{1}{8}\text{S} & \frac{5}{4} \end{bmatrix}$

(2) $i_L(t) = 1.6(1 - e^{-5t})\text{A}, t \geq 0$