

一、填空题

1. 开关断开:  $R_{ab} = 9\Omega$ ; 开关闭合:  $R_{ab} = 5\Omega$

2.  $u_1 = -L_1 \frac{di_1}{dt} - M \frac{di_2}{dt}$ ;  $u_2 = M \frac{di_1}{dt} + L_2 \frac{di_2}{dt}$

3.  $C = 20\mu\text{F}$ ;  $u_o = 20\cos 100\pi\text{V}$

4.  $P = 12\text{W}$ ;  $\lambda = 0.8$

5.  $i = (1 - e^{-10t})\varepsilon(t)\text{A}$ ;  $u = [\delta(t) - 10e^{-10t}\varepsilon(t)]\text{V}$

6.  $Y = \begin{bmatrix} \frac{1}{j\omega L} & -\frac{1}{j\omega L} \\ -\frac{1}{j\omega L} & j(\omega C - \frac{1}{\omega L}) \end{bmatrix}$ ;  $H = \begin{bmatrix} j\omega L & 1 \\ -1 & j\omega C \end{bmatrix}$

二、计算题

1.  $P_{1V} = 7\text{W}$ ;  $P_{10V} = 2\text{W}$

2. (1)  $\dot{U}_{oc} = 3\angle 0^\circ\text{V}$ ;  $Z_{eq} = (3 - j5)\Omega$

(2)  $P_{\max} = 0.75\text{W}$

3. (1) 相量模型略

(2)  $H(j\omega) = \frac{1 - \omega^2 + j2\omega}{1 - \omega^2 + j3\omega}$

(3)  $u_2 = 2.1\cos(2t + 10.3^\circ)\text{V}$

4. (1)  $u_C = (10 - 15e^{-8t})\text{V}$ ,  $t \geq 0$ ;

$i = 1.5e^{-8t}\text{A}$ ,  $t > 0$

(2)  $t = 51\text{ms}$

5. (1) 复频域模型略

(2)  $i_1(t) = (\frac{9}{16} + \frac{3}{40}e^{-2t} - \frac{3}{80}e^{-4t})\text{A}$ ,  $t \geq 0$