

武汉大学 2018—2019 学年度第 二 学期

《模拟电路基础（上）》重考试卷(A 卷)答案

一. 简单计算题（每题 7 分，共 56 分）

1 (1) $u_2 = 5V, u_5 = -4V, i_2 = 1A, i_4 = -1A, i_5 = 1A;$

(2) $P_1 = 2W, P_2 = -5W, P_3 = 6W, P_4 = 1W;$

2 (1) $I = 2.33A;$ (2) $P = 5.66W,$ 发出功率

3 电容, $C = 2F$

4 $R = 2\Omega, u_{oc} = 2V$

5 $i(t) = \sqrt{2} \times 0.1 \cos(\omega t) A$

6 $R_{ab} = -8\Omega$

7 $P = 25W, Q = -25 \text{ var}, \lambda = \frac{\sqrt{2}}{2}$ (滞后或者电感性)

8 $U = 8.43V$

$I = 4.85A$

$P = 9.33W$

二 $U = 195V, I = -120A$

三 $u_c(t) = U_c(\infty) + [U_c(0+) - U_c(\infty)]e^{-\frac{t}{\tau}} = 10 - 5e^{-0.1t} (t \geq 0)$

$$i_c(t) = C \frac{du_c}{dt} = e^{-0.1t} (t \geq 0)$$

四 $R_L = 9.6\Omega, P_{\max} = 5.4W$

五 $i(t) = \left(-2\sqrt{5} \sin\left(t + \arctan \frac{1}{2}\right) + \frac{2\sqrt{5}}{5} \cos\left(2t - \arctan \frac{1}{2}\right) \right) A$