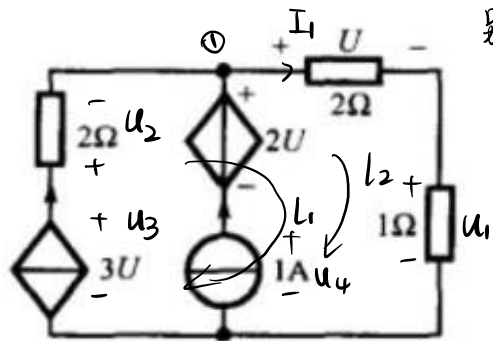


2. (10分) (限时10分钟) 计算下图所示电路中每个电源发出的功率。



另解: 对节点①列KCL:

$$3U + 1 = I_1 \Rightarrow I_1 = -0.2A$$

(2Ω电阻电压电流关系) $U = 2I_1 \Rightarrow U = -0.4V$

对回路l1列KVL方程: $u + u_1 + u_2 = u_3$ (注意参考方向)

$$u_1 = I_1 \quad u_2 = 2 \times 3U = 6U$$

$$\Rightarrow u_3 = -0.4V - 0.2V - 2.4V = -3V$$

对回路l2列KVL方程: $u_4 + 2U = u + u_1$ (注意参考方向)

$$\Rightarrow u_4 = -2U + u + \frac{u}{2} = -0.5u = 0.2V$$

2Ω电阻电压源发出功率 $P_1 = 2U \times 1A = -0.8W$

电流源发出功率 $P_2 = u_4 \times 1A = 0.2W$

受控电流源发出功率 $P_3 = 3U \times u_3 = -0.4 \times 3 \times (-1.2) = 3.6W$