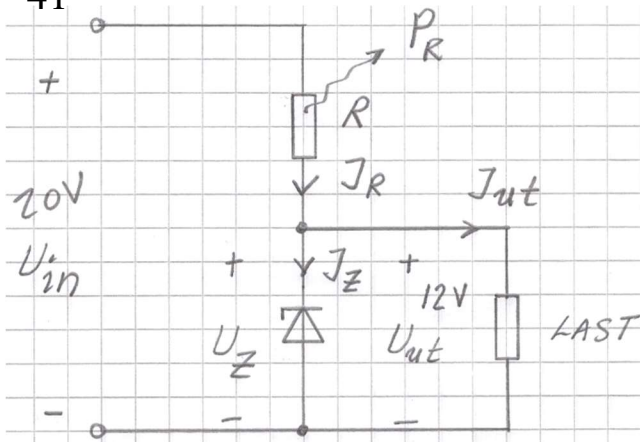


41



a) $U_Z = U_{out}$ ALLTSÅ VÄLJ $U_Z = 12\text{ V}$

b) REGULATORN FUNGERAR BARA OM DET FINNS STRÖM KVAR I ZENERDIODENS BACKRIKTNING

$$J_R = J_Z + J_{ut}$$

$$J_{ut\text{MAX}} = 0,50\text{ A} \Rightarrow J_R \geq 0,50\text{ A}$$

$$R = \frac{U_{in} - U_Z}{J_R} \Rightarrow R_{MAX} = \frac{20 - 12}{0,50} = 16\ \Omega$$

c) $P_R = R \cdot J_R^2$

OM $R = 16\ \Omega$ BLIR

$$P_R = 16 \cdot 0,50^2 = \underline{4,0\text{ W}}$$

d) BELASTNINGSGRAD $x = \frac{J_{ut}}{J_{utmax}}$

OM $J_{ut} = 0$ BLIR $J_z = J_R$

ALLTSÅ $x = 0$ GER $J_z = J_{zmax}$

OCH DÄRMED $P_z = P_{zmax}$

e) $P_{zmax} = U_z \cdot J_{zmax}$

$P_{zmax} = 12 \cdot 0,50 = \underline{6,0 \text{ W}}$