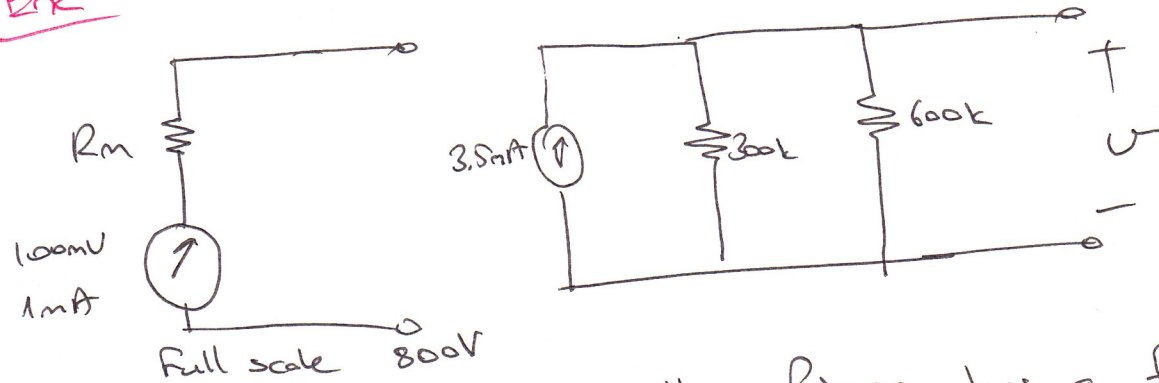


Ex



The voltmeter shown in the figure has a full scale reading of 800 V . The meter movement is rated 100 mV and 1 mA . What is the percentage of error in the meter if it is used to measure the voltage V

$$R_{\text{meter}} = 1$$

$$R_{\text{meter}} = R_m + R_{\text{max}} = \frac{800V}{2mA} = 800k$$

(9)

$$800k \parallel 300k \parallel 600k = 160k\Omega = R_{\text{eq}}$$

$$V_{\text{measured}} = 160k \cdot 3.5 = 560V //$$

$$V_{\text{true}} = 3.5 \cdot 10^{-2} \cdot \frac{300 \cdot 600}{800} \cdot 10^3 = 700V$$

$$\% \text{ Error} = \left(\frac{560}{700} - 1 \right) \cdot 100 = -20\% //$$