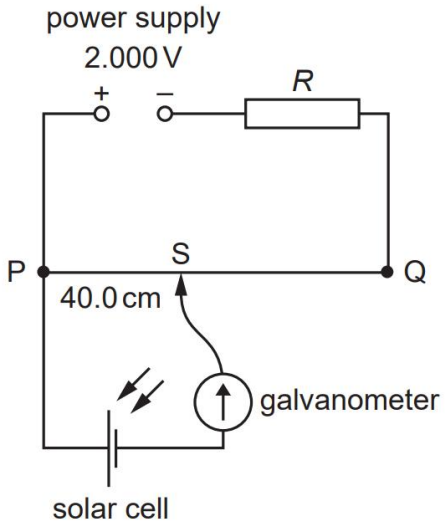
**22** A power supply and a solar cell are compared using the potentiometer circuit shown.




The e.m.f. produced by the solar cell is measured on the potentiometer.

The potentiometer wire PQ is 100.0 cm long and has a resistance of 5.00 Ω. The power supply has an e.m.f. of 2.000 V and the solar cell has an e.m.f. of 5.00 mV.

What is the value of resistance *R* so that the galvanometer reads zero when PS = 40.0 cm?

**A** 395 Ω **B** 795 Ω **C** 995 Ω **D** 1055 Ω